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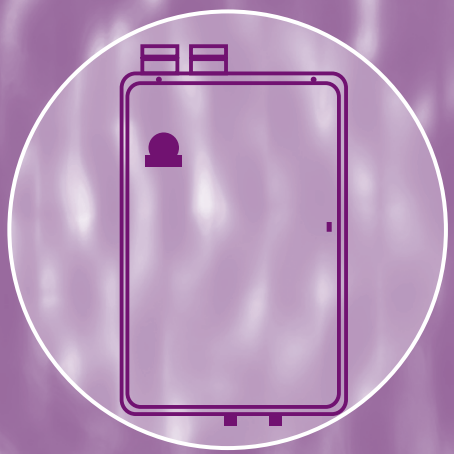
ANDREWS
WATER HEATERS



Internal

Installation Guide, Operation and Maintenance Manual

FASTTflo

CONTINUOUS FLOW WALL HUNG BALANCED FLUE HEATERS FOR NATURAL GAS AND LPG

WH42
WH56
LWH42
LWH56

THIS MANUAL MUST BE KEPT WITH THE APPLIANCE

November 2005 Part No. E791

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ANDREWS
WATER HEATERS

Reproduction of any information in this publication by any method is not permitted unless prior written approval has been obtained from Andrews Water Heaters.

Andrews Storage Water Heaters have been designed and manufactured to comply with current International standards of safety. In the interests of the Health and Safety of personnel and the continued safe, reliable operation of the equipment, safe working practices must be emplyed at all times. The attention of U.K. users is drawn to their responsibilities under the Health and Safety Regulations 1993.

All installation and service on the Andrews Water Heater must be carried out by properly qualified personnel, and therefore no liability can be accepted for any damage or malfunction caused as a result of intervention by unauthorised personnel.

The Andrews Water Heaters policy is one of continuous product improvement, and therefore the information in this manual, whilst completely up to date at the time of publication, may be subject to revision without prior notice.

Further information and assistance can be obtained from:

Andrews Water Heaters
Wednesday One, Black Country New Road
Wednesbury, West Midlands WS10 7NZ

Tel: +44 (0)121 506 7400 Fax: +44 (0)121 506 7401
Email: andrews@andrews-waterheaters.co.uk
Website: www.andrewswaterheaters.co.uk

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SECTION 1 GENERAL AND SAFETY INFORMATION

GENERAL INFORMATION

The Andrews Water Heater has been designed for use with NATURAL GAS and LPG and is manufactured to give an efficient, reliable and long service life.

To ensure the continued, trouble-free operation of your heater at maximum efficiency, it is essential that correct installation, commissioning, operation and service procedures are carried out strictly in accordance with the instructions given in this manual. By law, installation and commissioning of the heater must be carried out by properly qualified personnel.

The heater(s) must be installed in accordance with the following requirements;
The current GAS SAFETY (INSTALLATION AND USE) REGULATIONS
The current BUILDING REGULATIONS
The WATER SUPPLY (WATER FITTINGS) REGULATIONS 1999

Additionally, installation should be performed in accordance with all relevant requirements of the Gas Supplier, Local Authority and recommendations of the British Standards and Codes of Practice detailed below.

IMPORTANT SAFETY INFORMATION

Gas Safety (Installation and Use) Regulations 1998, or the rules in force.
In your own interest and that of safety it is law that all gas appliances shall be installed by registered person in accordance with the above regulations. Failure to install appliances correctly could lead to prosecution. Other persons should **NOT** attempt to install this equipment.

Unpack the appliance and check it carefully. If it appears to have any operating defects **DO NOT INSTALL** but contact the supplier.

This appliance is safe if correctly installed and sited. Please comply **CAREFULLY** with the instructions.

Installation **MUST** be carried out in accordance with the current issue of:

a) Building Regulations issued by the Dept. of the Environment and Building Standards (Scotland) Regulations.
b) I.E.E. Wiring Regulations for electrical installations.
c) Gas Safety (Installation and Use) Regulations (Current).
d) BS 5546:1990
e) BS 5440 Part 1:2000 and Part 2:1989
f) B56891 Part1:1989
g) BS 5482 Part 1:1989 – For Propane gas installations.
h) BS 6700
i) Local Bye Laws
j) Water Bye Laws
k) Health and Safety at Work etc. Act 1974.
l) HSE Approved code of Practice and Guidance L8 Legionnaires Disease
m) Such other specifications or legislation that may have superceded the above documents

Please be sure you are aware of the implications of these notes.

HEALTH AND SAFETY REGULATIONS 1993

It is the duty of manufacturers and suppliers of products for use at work to ensure, so far as is practicable, that such products are safe and without risk to health when properly used and to make available to users, adequate information about their safe and proper operation.

Andrews Water Heaters should only be used in the manner and purpose for which they were intended and in accordance with the instructions in this manual. Although the heaters have been manufactured with paramount consideration to safety, the basic safety precautions highlighted in this manual must be observed by the user.

It is imperative that all users of the heater must be provided with all the information and instruction necessary to ensure correct and safe operation.

Installation Manual

GAS WATER HEATER

WH42, LWH42 (Internal)
WH56, LWH56 (Internal)

WARNING: If the information in this manual is not followed exactly, a fire or explosion may result causing property damage, personal injury or death.

Potential dangers from accidents during installation and use are divided into the following three categories. Closely observe these warnings, they are critical to your safety.

⚠ **Danger**	Danger of serious injury or even death as well as danger of fire when the product is misused by ignoring this symbol.
⚠ **Warning**	Possibility of serious injury or even death as well as possibility of fire when the product is misused by ignoring this symbol.
⚠ **Caution**	Possibility of bodily injury or damage to property when the product is misused by ignoring this symbol.

Prohibited

Disconnect Power

Earth

Be sure to do

Requests to Installers

⚠ Caution
- In order to use the water heater safely, read this installation manual carefully, and follow the installation instructions.

- Failures and damage caused by erroneous work or work not as instructed in this manual are not covered by the warranty.
- Check that the installation was done properly in accordance with this Installation Manual upon completion.
- After completion of installation, be sure to hand the Operation Manual to the customer upon filling in all of the required items.

- The appliance must be installed in accordance with the Gas Safety (Installation and Use) Regulations and the rules in force in the country of installation.
- The manufacturer's instructions supplied.
- The Gas Safety (Installation and Use) Regulations.
- The appropriate Buildings Regulations either The Building Regulations, The Building Regulations (Scotland), The Building Regulations (Northern lreland).
- In IE, the installation must be carried out by a competent person and installed in accordance with the current edition of I.S.813 "Domestic Gas Installations", the current Building Regulations and reference should be made to the current ETCI rules for Electrical Installation.

SAR8286①

SAR8286 C

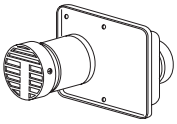
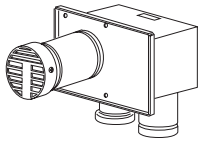
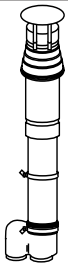
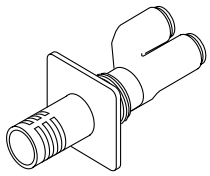
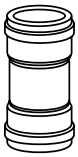
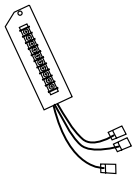
1. Included Accessories

The following accessories are included with the unit.
Check for any missing items before starting installation.

Part	Shape	Q'ty	Part	Shape	Q'ty
Owner's Guide		1	Installation Manual (this document)		1
Crescent clamp		1	Drain hose		1
Tapping Screw		5	Remote Controller		1

2. Optional Accessories

The accessories listed below are not included with the units, but may be necessary for installation.

Part	Shape	Q'ty	Part	Shape	Q'ty
Flue Terminal FF-100		1	Flue Terminal FF-100A		1
M&G Vertical Flue Terminal		1	M&G Horizontal Flue Terminal		1
Special Adapter		1	Condensate trap		1
System Controller		1	Quick Connect Cord		1

(L)WH42_56(01_08)_E Page 2 05.9.26, 7:40 PM Adobe PageMaker 6.5J/PPC

Item	Specification			
Model Name	WH42	LWH42	WH56	LWH56
Flue Type	C_{13}, C_{33}			
Category	I_{2H}	I_{3P}	I_{2H}	I_{3P}
Electrical Consumption	89W	85W	120W	112W
Gas Supply Pressure	G20 20mbar	G31 37mbar	G20 20mbar	G31 37mbar
Max.Burner Setting Pressure	7.1mbar	13.6mbar	7.1mbar	13.6mbar
Min.Burner Setting Pressure	2.5mbar	4.5mbar	2.5mbar	4.5mbar
Max.Water Pressure	10.0bar	10.0bar	10.0bar	10.0bar
Min.Water Pressure	1.0bar	1.0bar	1.0bar	1.0bar
Max.Heat Output	42.0kW	42.0kW	55.8kW	55.8kW
Min.Heat Output	4.3kW	4.3kW	4.3kW	4.3kW
Max.Heat Input(NET)	49.0kW	49.0kW	62.3kW	62.3kW
Min.Heat Input(NET)	5.0kW	5.0kW	5.0kW	5.0kW
Destination Countries	GB&IE	GB&IE	GB&IE	GB&IE
IP Rate	IPX0			

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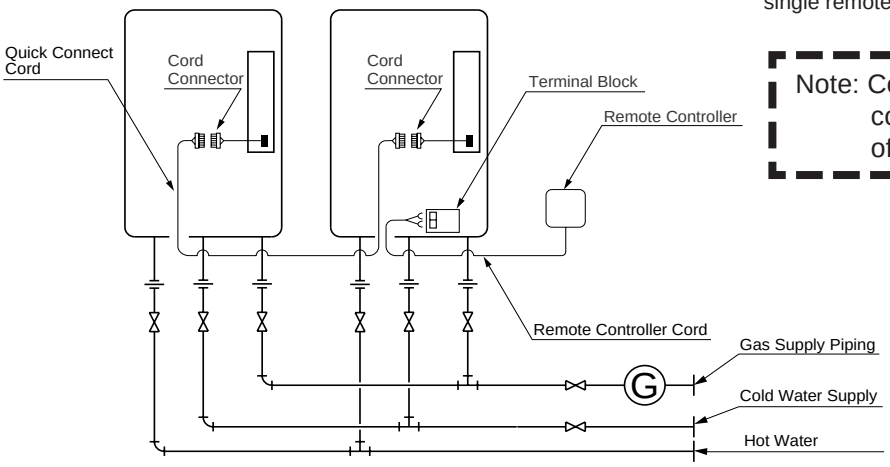
3. Quick Connect Multi System Installation

- The Quick Connect Multi System allows the installation of two units together utilizing only the Quick Connect Cord.

The Quick Connect Cord is 2m. long. Install the two units 470mm-950mm apart at the center to ensure the cord will be able to reach between the units. (See Typical Plumbing diagram). (If the distance between the two units is too great, not only will the cord not be able to reach, but the water temperature may also become unstable because of the difference in pipe length between the two units.)

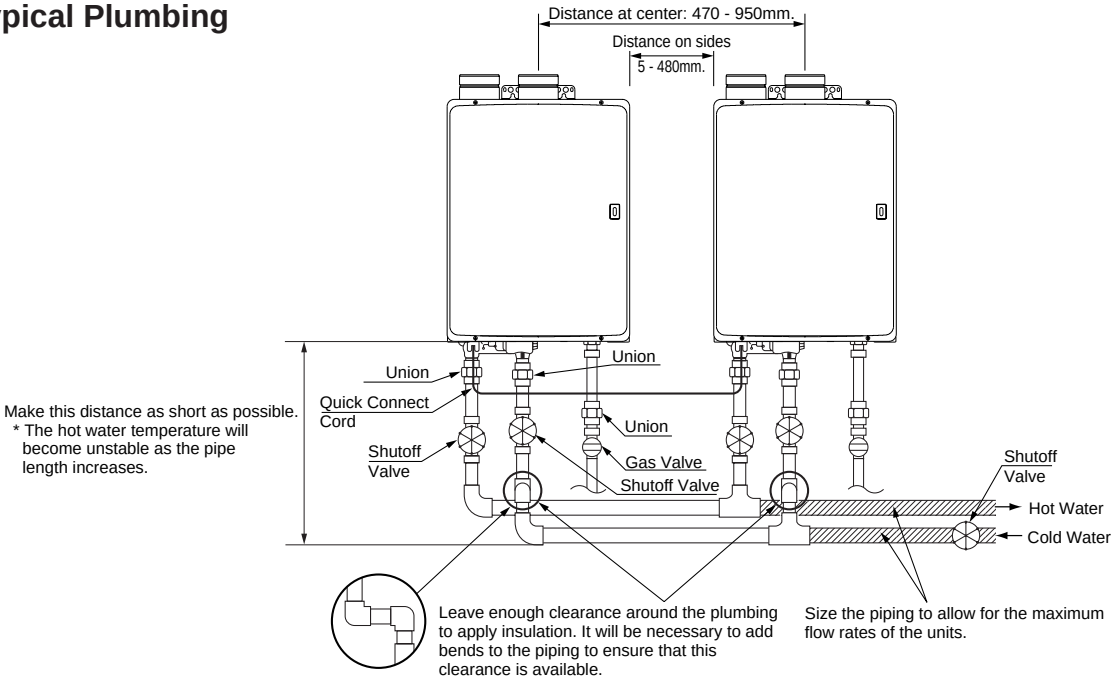
System Diagram

* When connecting 2 devices, use only a single remote controller.



Note: Connect the remote controller to only one of the devices.

Typical Plumbing


Distance at center: 470 - 950mm.
Distance on sides
5 - 480mm.
Union
Union
Quick Connect Cord
Union
Shutoff Valve
Gas Valve
Shutoff Valve
Shutoff Valve
Hot Water
Cold Water
Make this distance as short as possible.
* The hot water temperature will become unstable as the pipe length increases.
Leave enough clearance around the plumbing to apply insulation. It will be necessary to add bends to the piping to ensure that this clearance is available.
Size the piping to allow for the maximum flow rates of the units.

- Insulate the hot water piping to prevent heat loss. Insulate and apply heating materials to the cold water supply piping to prevent heat loss and freezing of pipes when exposed to excessively cold temperatures.

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4. Before Installation

⚠ Caution

Check the Gas

- Check that the rating plate indicates the correct type of gas. Check that the gas supply line is sized for 62.3 kW for this unit.

Check the Power

- The power supply required is 230V AC, at 50Hz. Using the incorrect voltage may result in fire or electric shock.

Do Not Use Equipment for Purposes Other Than Those Specified

- Do not use for purposes other than increasing the temperature of the water supply, as unexpected accidents may occur as a result.

Check Water Supply Quality

- If the water supply is hard, acidic or otherwise impure, treat the water with approved methods in order to ensure full warranty coverage.

Use Extreme Caution if Using With A Solar Pre-Heater

- Using this unit with a solar pre-heater can lead to unpredictable output temperatures and possibly scalding. If absolutely necessary, use mixing valves to ensure output temperatures do not get to scalding levels. Do not use a solar pre-heater with the quick-connect multi-system.

Checkup

- Check the fixing brackets and the flue pipe yearly for damage or wear. Replace if necessary.

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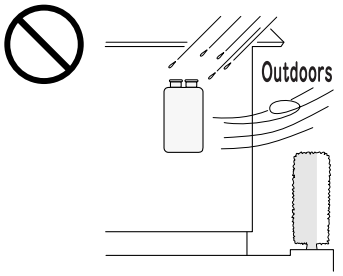
5. Choosing Installation Site

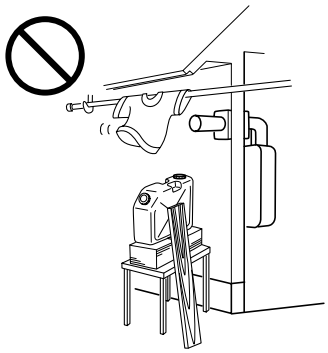
The appliance must be installed in a suitably ventilated room, in accordance with the regulatins in force.

* Locate the appliance in an area where leakage from the unit or connections will not result in damage to the area adjacent to the appliance or to the lower floors of the structure. When such locations cannot be avoided, it is recommended that a suitable drain pan, adequately drained, be installed under the appliance. The pan must not restrict combustion air flow.

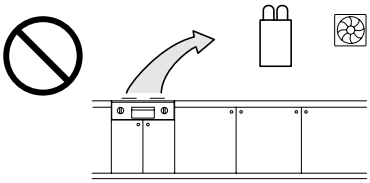
⚠ Caution



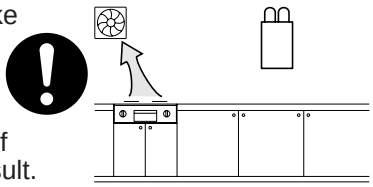
- The water heater is designed for internal installation only. Never install it outdoors or in a bathroom, it may be damaged or a fire may be caused.
- Consult with the customer concerning the location of installation.
- Avoid places where fires are common, such as those where petrol, benzene and adhesives are handled, or places in which corrosive gases (ammonia, chlorine, sulfur, ethylene compounds, acids) are present.
  This may cause incomplete combustion or failures.



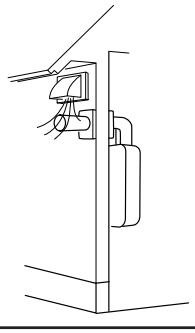
- Locate the flue terminal so that there are no obstacles around the termination and so that exhaust can't accumulate. Do not enclose the termination with corrugated metal or other materials.
- Install the water heater in an area that allows for the proper clearances to combustible and noncombustible construction. Consult the rating plate on the appliance for proper clearances.
- Do not install the water heater in a place where it may be threatened by falling objects, such as under shelves.
- The water heater must be installed in a place where supply and exhaust pipes can be installed as directed.
- Do not install the water heater where the exhaust will blow on outer walls or material not resistant to heat. Also consider the surrounding trees and animals.
  The heat and moisture from the water heater may cause discoloration of walls and resinous materials, or corrosion of aluminum materials.



- Avoid installation above gas ranges or stoves.
- Avoid installation between the kitchen fan and stove. If oily fumes or a large amount of steam are present in the installation location, take measures to prevent the fumes and steam from entering in the equipment.



- Avoid installation in places where dust or debris will accumulate. Dust may block the air-supply opening, causing the performance of the fan motor to drop and incomplete combustion to occur as a result.
- Install in a location where the exhaust gas flow will not be affected by fans or range hoods.
- Take care that noise and exhaust gas will not affect neighbors.
- Avoid installation in places where special chemical agents (e.g., hair spray or spray detergent) are used.
  Ignition failures and malfunction may occur as a result.



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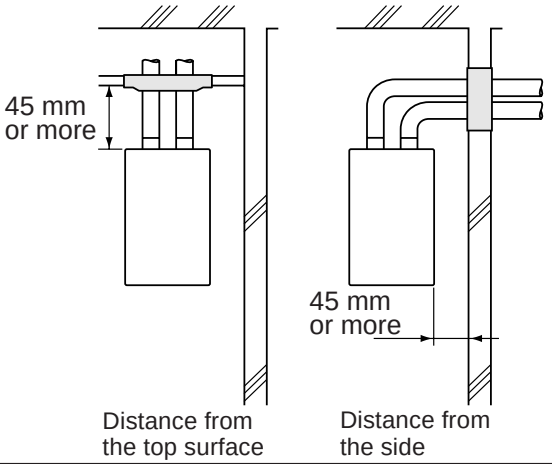
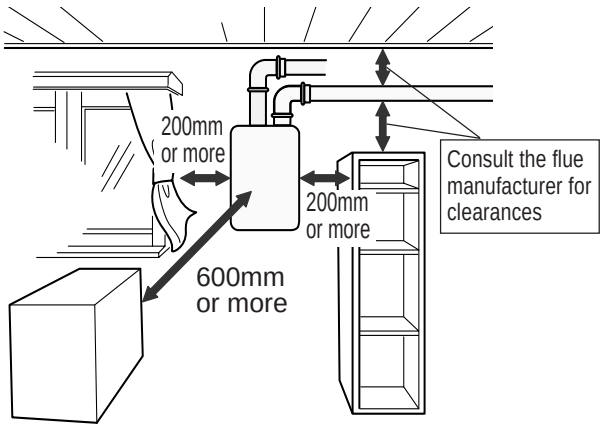
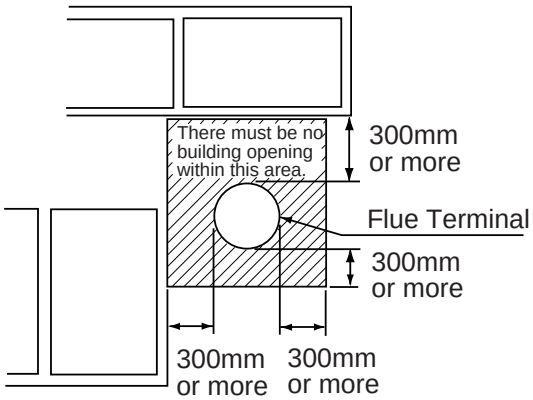
6. Installation Clearances ⚠ Caution

Before installing, check for the following:

The appliance must be installed in a suitably ventilated room, in accordance with the regulations in force.
Install in accordance with relevant building and mechanical codes, as well as any local, state or national regulations.

Item	Check	Illustration
Distance from combustibles	• Maintain the following clearances from both combustible and non-combustible materials.	
Securing of space for repair/inspection	• If possible, leave 200mm or more on either side of the unit to facilitate inspection. • If possible, leave 600mm or more in front of the unit to facilitate maintenance and service if necessary.	
Outdoor Clearances to Opening into Any Building	• There must be a clearance of 600mm or more in front of the flue terminal. • This restriction will not be applied to an area where an effective shield makes a clearance of 600mm or more in front of the exhaust outlet.	

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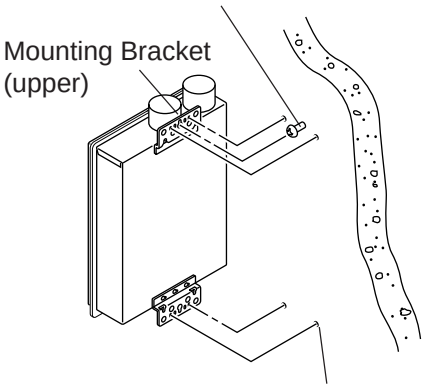
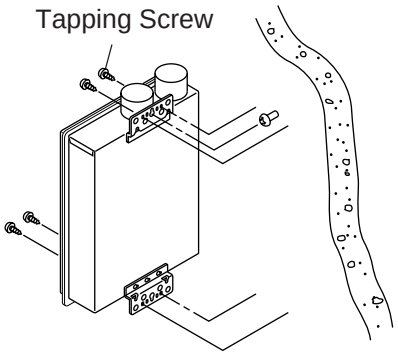
7. Installation

Securing to the wall

- The weight of the device will be applied to the wall. If the strength of the wall is not sufficient, reinforcement must be done to prevent the transfer of vibration.
- Do not drop or apply unnecessary force to the device when installing. Internal parts may be damaged and may become highly dangerous.
- Install the unit on a vertical wall and ensure that it is level.

Item	Check	Illustration
Locating Screw Holes	**Caution** • When installing with bare hands, take caution to not inflict injury. • Be careful not to hit electrical wiring, gas, or water piping while drilling holes. 1. Drill a single screw hole, making sure to hit a stud. 2. Insert and tighten the screw and hang the unit by the upper wall mounting bracket. 3. Determine the positions for the remaining four screws (two for the top bracket and two for the bottom), and remove the unit.	Location of Screw Hole Mounting Bracket (upper)  Locating Screw Holes
Mounting	4. Drill holes for the remaining four screws. 5. Hang the unit again by the first screw, and then insert and tighten the remaining four screws. 6. Take waterproofing measures so that water does not enter the building from screws mounting the device.	Tapping Screw 
Structure	• Make sure the unit is installed securely so that it will not fall or move due to vibrations or earth-quakes.	

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8. Flue Pipe Installation (Internal Installation Only)

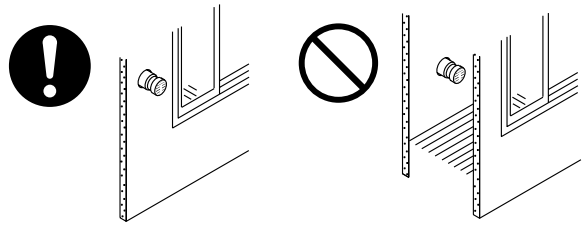
Flue Terminal Installation

- Follow the installation instructions included with the flue terminal and which are reproduced at the end of this manual. This appliance must be the flue through the wall, not vertically to the roof.

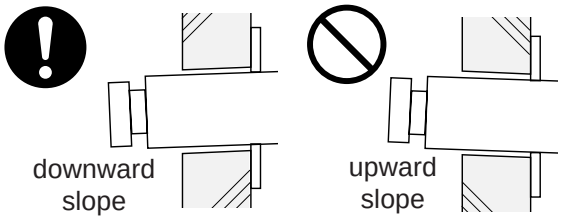
Flue Terminal Installation Precautions

Note the following flue terminal installation requirements

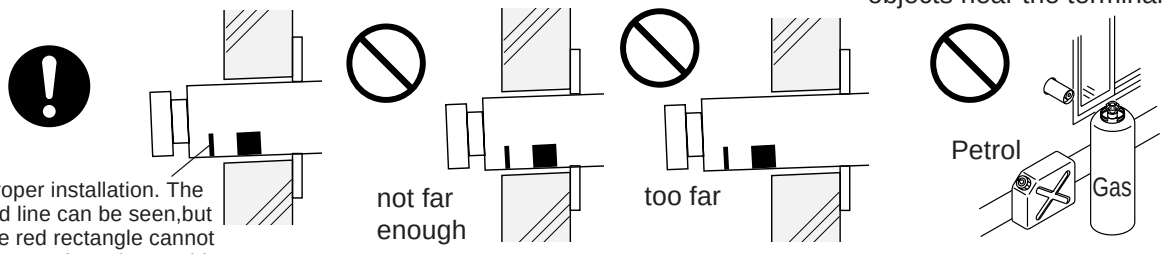
- Do not install the flue terminal indoors



- Install the flue terminal with a downward slope

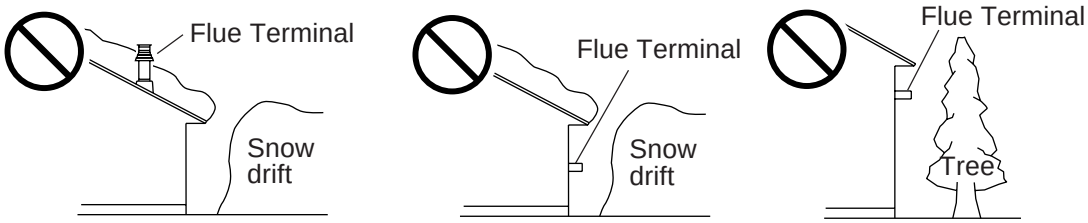


- Install with the proper length protruding through the wall (FF-100A only)



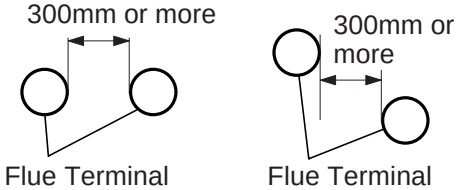
- Avoid storing hazardous objects near the terminal

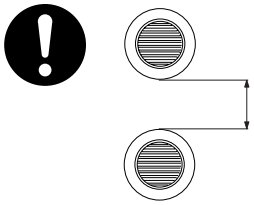
- Avoid installing the terminal where obstacles will block it



- In the case the discharge direction of the exhaust is to the side as shown in the diagram below, do not select the supply/exhaust tube top. Incomplete combustion caused by short cycling of exhaust gas may occur as a result. (except terminal guard.)

- Clearance from the flue terminal. If multiple units are installed, terminals must be separated by 300mm or more in a plain view regardless of the vertical clearance.





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Detailed recommendations for the flue installations are given in BS 5440:1:2000. The following notes are for general guidance only.

Note: An adapter is always required on top of the heater.
For the vertical flue set up, offset adapter will be supplied for the air intake.

a) The flue system must be constructed using only Powermax approved components.

b) It is important that the position of the terminal allows free passage of air across it at all times.

c) It is ESSENTIAL TO ENSURE that products of combustion discharging from the terminal cannot reenter the building, or any other adjacent building, through ventilators, windows, doors, other sources of natural air infiltration, or forced ventilation / air conditioning.

d) The minimum acceptable dimensions from the flue terminal to obstructions and ventilation openings are specified in Figs. 4& 5 opposite.

e) If the flue terminal discharges into a pathway or passageway check that combustion products will not cause nuisance and that the terminal will not obstruct the passageway.

Assembling Air/Flue Pipes

The flue pipes must be assembled with the plain end of pipe or fitting nearest the boiler and the female (socket) end furthest from the boiler. Check that a seal is fitted in every socket.

Always adjust length of pipes by cutting and de-burring plain end so that it does not damage or disturb the seal. Remove burrs from inside and outside of pipe and ensure the pipe is clean and free from oil and grease.

Any generally "horizontal" run of the flue pipe MUST NOT FORM A LOW POINT at which condensate could accumulate.

a. Measure and cut the first pair of the flue pipes away from the appliance. Push pipes fully into the sockets on top of the boiler whilst also fitting the flue duct prepared as above.

b. Measure and cut next pair of the air/flue pipes.

c. Prepare pipe support brackets as required before engaging pipes with the socket of preceding pipes or bends.

d. Push pipes together as before taking care not to dislodge seals. When cutting and fitting the flue pipes on extended the flue systems, allow approx. 5 mm clearance at the bottom of each joint - see Fig. 8.

e. Repeat above procedure to reach terminal. Ensure that air inlet and the flue gas connections are correctly made and are not inadvertently reversed.

f. Fix pipe supports to masonry or woodwork so that the flue/air pipes are held securely in position.

g. Check especially that all joints within any duct or other void are correctly engaged and sealed before fixing the ductwork.

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Installing Horizontal Extended Terminal

Important: The flue terminal must be installed horizontally.

1. Mark the centre of the 152mm diameter hole and core drill.
   Note: If the wall is clad with a combustible material an additional 25mm wide area must be removed around liner.

2. Measure the wall thickness and cut the liner to this length.
   Note: Cut opposite end to rim and allow some material to be used as tabs on the inside of the wall to ensure a secure fixing.
   Note:If the terminal has to be fitted from inside the property, the liner can be inserted with the rim on the inside.

3. Fit the liner through the hole and make good internal and external rendering.
   The latter may be done with arm extended through liner.

4. Push the flue terminal assembly into liner. Ensure terminal protrudes by 110mm from the wall.
   Important: The grille must be totally exposed to air. Fit the closure plate around the pipes and secure to the wall.

5. The flue pipe MUST be supported by a pipe clamp before the first joint.
   Note: The flue pipe ends with a female socket designed for use with the optional 3° Bend. If not using the bend, the socket should be cut off the flue pipe.

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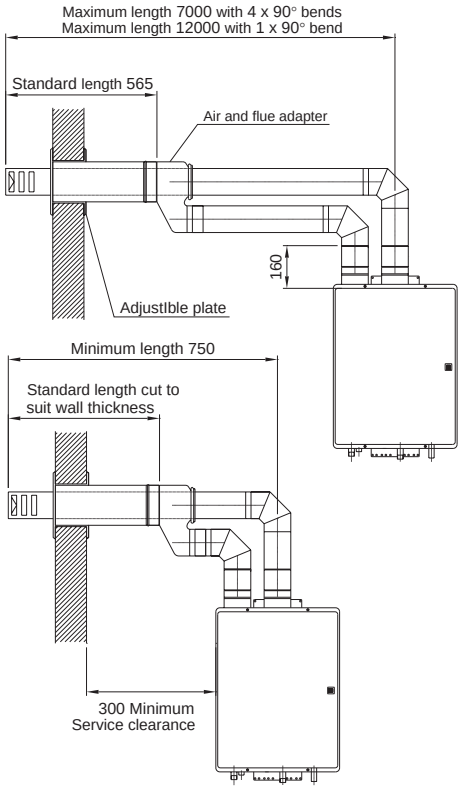
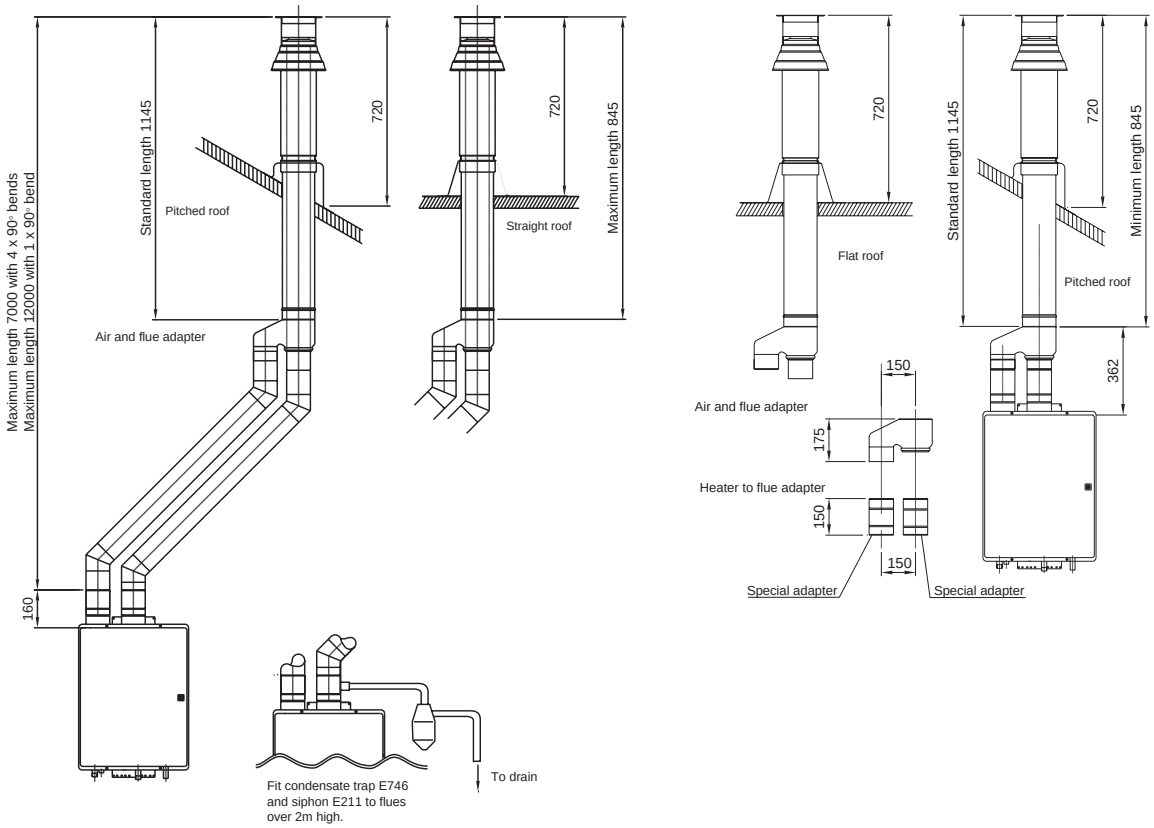
• M&G HORIZONTAL FLUE TERMINAL



• M&G VERTICAL FLUE TERMINAL

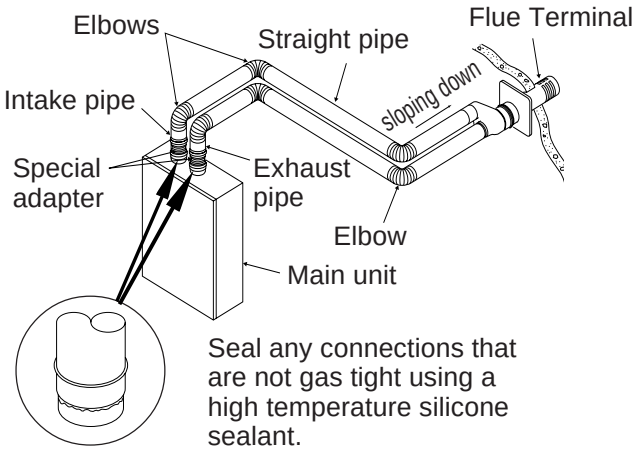


M&G HORIZONTAL FLUE TERMINAL

- Use only the following models of the flue terminals with this unit.
- The M&G Horizontal Flue Terminal can be cut to suit the wall thickness.

Wall thickness
50 mm to 500 mm

Flue system installation example



Flue Precautions

- Use 100mm diameter flue pipe.
- Maximum flue length
  4 elbow (90 degree) +
  7m (flue pipe) + Flue Terminal
  1 elbow (90 degree) +
  12m (flue pipe) + Flue Terminal
- Minimum flue length
  1 elbow (90 degree) + Flue Terminal
- Exceeding the maximum flue length is dangerous and may result in bad combustion.
- Maximum 90 degree bends not to exceed 4.
- Maximum length must be reduced by 2000mm for each 90° bend used.
- Maximum length must be reduced by 1000mm for each 45° bend used.
- If possible, don't install the flue pipe through any enclosed areas.If necessary,consult ANDREWS WATER HEATER for clearances.
- Install the flue terminal so that all exhaust is directed to and all intake air is taken from outdoors.
- Do not store hazardous or flammable substances near the flue terminal.
- Slope the intake and exhaust pipes at a 1/50 grade down towards the termination.
- Connect the flue pipe firmly so that it will prevent exhaust gases from leaking.
- Steam or condensed water may drip out of the flue terminal. Dispose of this condensed water according to local codes and in order to prevent injury or property damage.
- If this product will be installed in an area where snow is known to accumulate,protect the flue termination from blockage by snow drifts or damage from snow falling off of roofs.
- Support the flue pipe with hangers at intervals.
- Install the flue terminal so that it is easily accessible for maintenance both from the indoors and the outdoors.
- If the flue terminal will be installed higher than the water heater, make the vertical section directly above the water heater as short as possible,and slope down to the terminal. Do not have another vertical section after the horizontal section begins.
- Make the vertical pipe as short as possible.

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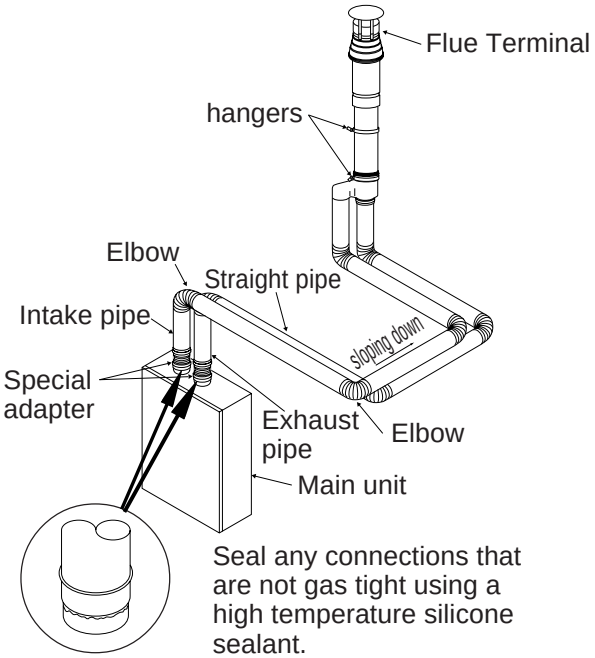
M&G VERTICAL FLUE TERMINAL

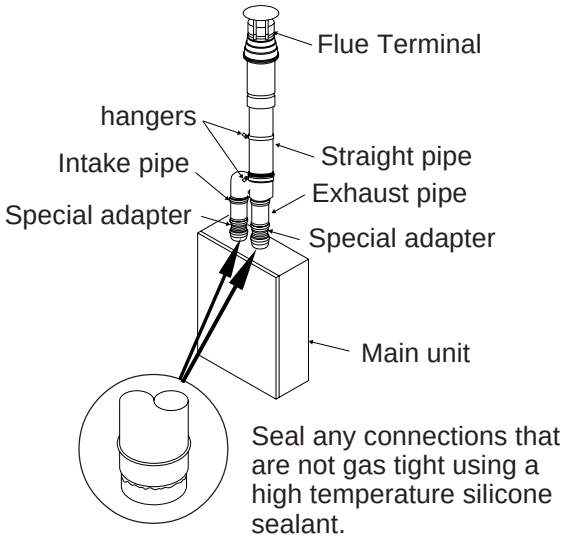
- Use only the following models of the flue terminals with this unit.
- The M&G Vertical Flue Terminal can be cut to suit the roof.

Roof thickness
50 mm to 500 mm

Flue system installation example



Flue system installation example



Flue Precautions

- Use 100mm diameter flue pipe.
- Maximum flue length
  4 elbow (90 degree) +
  7m (flue pipe) + Flue Terminal
  1 elbow (90 degree) +
  12m (flue pipe) + Flue Terminal
- Minimum flue length
  1 elbow (90 degree) + Flue Terminal
- Exceeding the maximum flue length is dangerous and may result in bad combustion.
- Maximum 90 degree bends not to exceed 4.
- Maximum length must be reduced by 2000mm for each 90° bend used.
- Maximum length must be reduced by 1000mm for each 45° bend used.
- If possible, don't install the flue pipe through any enclosed areas. If necessary, consult ANDREWS WATER HEATER for clearances.
- Install the flue terminal so that all exhaust is directed to and all intake air is taken from outdoors.
- Do not store hazardous or flammable substances near the flue terminal.
- Slope the intake and exhaust pipes at a 1/50 grade down towards the termination.
- Connect the flue pipe firmly so that it will prevent exhaust gases from leaking.
- Steam or condensed water may drip out of the flue terminal. Dispose of this condensed water according to local codes and in order to prevent injury or property damage.
- Fit condensate trap and siphon to flues over 2m high.
- If this product will be installed in an area where snow is known to accumulate,protect the flue termination from blockage by snow drifts or damage from snow falling off of roofs.
- Support the flue pipe with hangers at intervals.
- Install the flue terminal so that it is easily accessible for maintenance both from the indoors and the outdoors.
- If the flue terminal will be installed higher than the water heater,make the vertical section directly above the water heater as short as possible,and slope down to the terminal. Do not have another vertical section after the horizontal section begins.
- Make the vertical pipe as short as possible.

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Connecter for switching airflow rate depending on exhaust conditions

Under the exhaust conditions indicated by the shaded portion of the table below, the connector for switching the airflow rate shown in the illustration below is pulled out. (Changes the speed of fan rotation.)

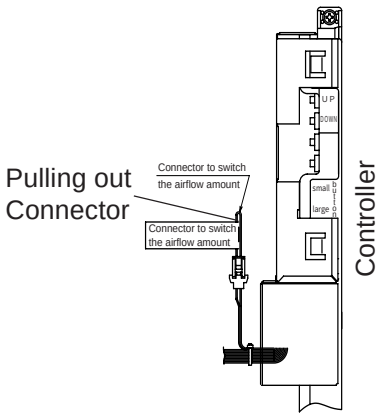
[Extending limits for the exhaust flues]

4 bends within 7 m

1 bend within 12 m

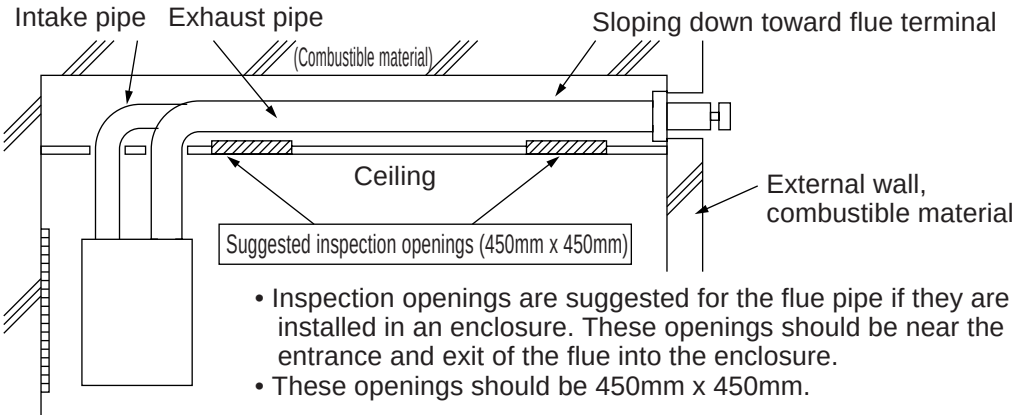
<Extending conditions for the exhaust flues>

Length \ Bends	1	2	3	4
1 m				
2 m				
3 m				
4 m				
5 m				
6 m				
7 m				
8 m				
9 m				
10 m				
11 m				
12 m				



The power must be unplugged when adjusting (pulling in or out) the connector to switch the airflow amount.

When the intake/exhaust pipes pass through an enclosed space:



- Inspection openings are suggested for the flue pipe if they are installed in an enclosure. These openings should be near the entrance and exit of the flue into the enclosure.
- These openings should be 450mm x 450mm.

Terminal Guard

A terminal guard is required if persons could come into contact with the terminal or the terminal could be subject to damage.

If a terminal guard is required, it must be positioned to provide minimum of 50 mm clearance from any part of the terminal and be central over the terminal.

Description:Flue Outlet Guard
Andrews Part Number:E105
Manufactured by:H.Docherty Limited
Red Shute Hill Industrial Estate
Red Shute Hill
Hermtage, Newbury
Berkshire, RG18 9QL
United Kingdom

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9. Gas Piping

Follow the instructions from the gas supplier.

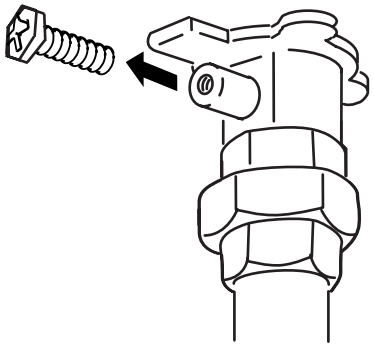
The appliance and its individual shutoff valve must be disconnected from the gas supply piping system during any pressure testing of that system at test pressures in excess of 35 mbar.
The Appliance must be isolated from the gas supply piping system by closing its individual manual shutoff valve during any pressure testing of the gas supply piping system at test pressures equal to or less than 35 mbar.

The appliance and its gas connections must be leak tested before placing the appliance in operation.

The inlet gas pressure must be within the range specified. This is for the purposes of input adjustment.

Measuring Gas Pressure

In order to check the gas supply pressure to the unit, a tap is provided on the gas inlet. Remove the hex head philips screw from the tap, and connect a manometer using a silicon tube.



Manifold Gas Pressure Adjustment

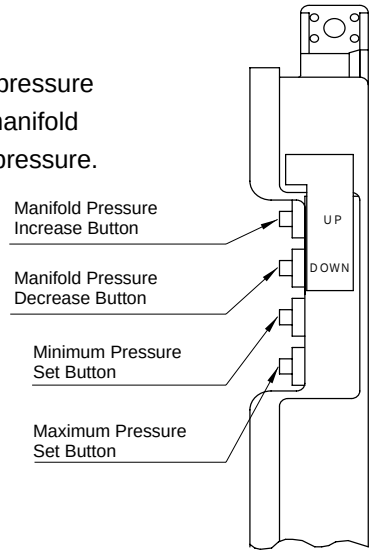
NOTE:

* Use the following procedure to adjust the manifold gas pressure only if it can be done with a high flow rate through the unit.

(1) With a manometer or pressure guage connected to the manifold pressure tap, press and hold the maximum pressure set button. Use the manifold pressure increase and decrease buttons to adjust to the correct pressure.

(2) Press and hold the minimum pressure set button. Use the manifold pressure increase and decrease buttons to adjust to the correct pressure.

(3) Repeat steps (1) and (2) until both are at the correct pressure.



Circuit Board

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10. Water Piping

Ask a qualified plumber to perform the installation of the plumbing. Observe all applicable codes.

This appliance is suitable for potable water. Do not use this appliance if any part has been underwater. Immediately call a qualified service technician to inspect the appliance and replace any part of the control system and gas control which has been under water.

If the water heater is installed in a closed water supply system, such as one having a backflow preventer in the cold water supply line, means shall be provided to control thermal expansion. Contact ANDREWS WATER HEATERS TECHNICAL DEPARTMENT FOR ADVICE.

Piping and components connected to the water heater shall be suitable for use with potable water.
Toxic chemicals, such as those used for boiler treatment, shall not be introduced into the potable water.
A water heater used to supply potable water may not be connected to any heating system or components previously used with a nonpotable water heating appliance.
When water is required in one part of the system at a higher temperature than in the rest of the system, means such as a mixing valve shall be installed to temper the water to reduce the scalding hazard.

- Flush water through the pipe to clean out metal powder, sand and dirt before connecting it.
- Take appropriate heat insulation measures (e.g., wrapping with heat insulation materials, using electric heaters) according to the climate of the region to prevent the pipe from freezing.
- Use a union coupling or flexible pipe for connecting the pipes to reduce the force applied to the piping.
- Do not use piping with a diameter smaller than the coupling.
- When feed water pressure is too high, insert a depressurizing valve, or take water hammer prevention measures.
- Avoid using joints as much as possible to keep the piping simple.
- Avoid piping in which an air holdup can occur.
- Use approved piping materials.
- If installing the unit on a roof:
  If the unit is installed on a roof to supply water to the levels below, make sure that the water pressure supplied to the unit does not drop below 2000 mbar. It may be necessary to install a pump system to ensure that the water pressure is maintained at this level.
  Check the pressure before putting the unit into operation.
  Failing to supply the proper pressure to the unit may result in noisy operation, shorter lifetime of the unit, and may cause the unit to shut down frequently.

Supply water piping

- Do not use PVC piping.
- Mount a check valve and a shut off valve (near the inlet).
- In order for the client to use the water heater comfortably,1000 mbar to 5000 mbar of pressure is needed from the water supply.
  Be sure to check the water pressure. If the water pressure is low, the water heater cannot perform to its full capability, and may become a source of trouble for the client.

Drain piping

- Expansion water may drop from the pressure prevention device and wet the floor. If necessary, provide drain piping or use a drain hose to remove the water.

Hot water piping

- Do not use lead or PVC piping.
- The longer the piping, the greater the heat loss. Try to make the piping as short as possible.
- Use a mixing valve with a low water resistance. Use shower heads with low pressure loss.
- If necessary, use a pump or other means to ensure that the supply water pressure to the inlet of the heater does not fall below 2000 mbar when the maximum amount of water is being demanded. Also install a pressure meter on the inlet. If this is not done, local boiling will occur inside the water heater causing abnormal sounds and decreasing the durability of the heat exchanger.

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11. Electrical Wiring

Consult a qualified electrician for the electrical work.

Do not connect electrical power to the unit until all electrical wiring has been completed.

i) "A means of disconnection from the supply mains having a contact separation in all poles must be provided to allow for full disconnection".

ii) Under voltage Cat III conditions should be incorporated in the fixed wiring in accordance with the wiring regulations.

iii) "If the supply cord is damaged, it must be replaced by the manufacturer or its service agent".

This appliance must be electrically grounded in accordance with Electrical Authority Regulations.

External wiring must be correctly earthed, polarised and in accordance with the relevant standards.

In GB this is BS 6891.

In IE this is the current edition of I.S.813 "Domestic Gas Installations".

The boiler must be connected to a permanent 230 V ac, 50Hz supply.

Connection of the whole electrical system of the boiler, including any heating controls, to the electrical supply must be through one common isolator and must be fused 10 Amp maximum.

Isolation should be by a double pole switched fused spur box, with a minimum gap of 3 mm for both poles. The fused spur box should be readily accessible and preferably adjacent to the appliance. It should be identified as to its use.

Caution: Label all wires prior to disconnection when servicing controls. Wiring errors can cause improper and dangerous operation.

Verify proper operation after servicing.

Field wiring to be performed at time of appliance installation.

⚠ Caution Do not turn on the power until the electrical wiring is finished. This may cause electrical shock or damage to the equipment to occur.

- The electrical supply required by the water heater is 230V AC at 50 Hz. The power consumption may be up to 135W. Use an appropriate circuit.
- Do not disconnect the power supply when not in use. When the power is off, the freeze prevention in the water heater will not activate, resulting in possible freezing damage.

- Do not let the power cord contact the gas piping.

Tie the redundant power cord outside the water heater. Putting the redundant length of cord inside the water heater may cause electrical interference and faulty operation.

Ground

- To prevent an electric shock, always plug power lead into an earth powerpoint.

THE APPLIANCE MUST BE EARTHED

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Remote Controller

• Applicable Model

		WH42, LWH42, WH56, LWH56
Remote controller	Main	RC-7508M

• The remote controller must be installed in accordance with the installation manual enclosed in the package.

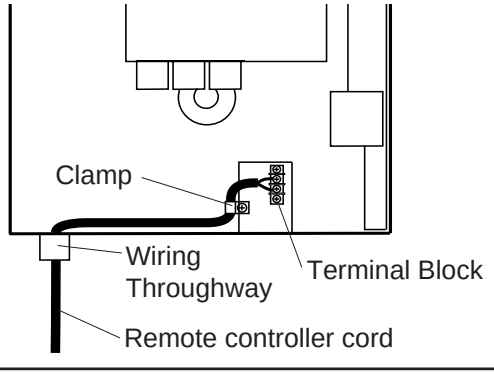
Connecting Remote Controller Cord to Unit

- Keep the remote controller cord away from the freeze prevention heaters in the unit.
- Tie the redundant cord outside the water heater. Do not put the extra length inside the equipment.
- The remote controller cord can be extended up to 100m with Remote controller cord.
- Use a Y type terminal with a resin sleeve. (Without the sleeve, the copper wire may corrode and cause problems).
- Be sure to hand tighten when screwing to the terminal block. Power tools may cause damage to the terminal block.

Remote controller cord

- Use Remote controller cord for any extensions.
- Install according to the National Electrical Code and all applicable local codes.

1. Remove the front cover of the heater (4 screws).
2. Pass the remote controller cord through the wiring throughway and into the unit.
3. Connect the Y terminals at the end of the remote controller cord to the terminal block.
4. Secure the remote controller cord with a clamp.
5. Replace the front cover.



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12. Commissioning

The installer should test operate the unit, explain to the customer how to use the unit, and give the owner this manual before leaving the installation

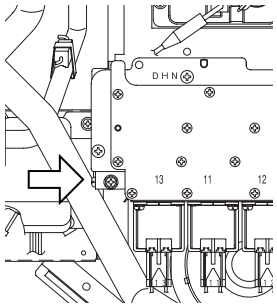
NOTE: The appliance has been factory set and no adjustment is necessary.

• Preparation ··· (1) Ensure all lines are purged / flushed of debris prior to connection to appliance.
(2) Open the shut off valve on the water supply, check that water passes through the valve and close the valve.
(3) Open the gas supply valve, turn on the power supply, and turn on the Operation switch on the remote controller (the Operation lamp turns on) .

(1) Open a hot water fixture and confirm that the "Burner On" lamp comes on, and that hot water is being produced. (If necessary, repeat until the air in the gas piping is bled out).
* White smoke may be noticed from the exhaust pipe during cold weather. However, this is not a malfunction of the unit.
* If an “11” error code appears on the remote controller, turn the unit off and then back on again, and then open a hot water fixture again.

(2) Change the temperature setting on the remote controller and check that the water temperature changes.

(3) Check the secondary gas pressure.
The regulator on products is electronically controlled and pre-set in factory.
It does not require adjustment on installation under normal condition.
Perform the following procedure only if the unit is operating incorrectly and all other possible causes have been eliminated.
1) Turn off the gas supply.
2) Turn off power supply.
3) Remove the front panel from the appliance.
4) Attached pressure gauge to gas pressure checking point. (Fig.1)
5) Turn on the gas supply
6) Turn on power supply
7) If remote controllers are fitted, turn the unit “ON” at the kitchen controller; open a hot water tap fully.
Caution: Do not touch hot water outlet during this procedure.
8) Set the Max. and Min. gas flow rate by following the procedure about "Manifold Gas Pressure Adjustment" on page 16.
9) Check the gas pressure at checking point.
Refer to “Specification” on page 3.



(Fig.1)

• If the water heater does not operate normally, refer to "Troubleshooting" in the Operation Manual.
* After the trial operation, clean the filter in the cold water inlet.

<If installed with a quick connect multi-system>
• Turn the system power on with the remote controller.
• Slowly open a hot water fixture and check that the units ignite sequentially. Check to see that the hot water temperature is the same as the temperature displayed on the remote controller. (*1)

* If inlet water temperature is high, and both units do not ignite at the same time, switch which unit will ignite first by pressing the Max. or Min. Manifold Pressure Set Button on the circuit board and then confirm each unit can ignite. (*2)

Unit A Ignites Unit B Doesn't Ignite	Press Max. or Min. Manifold Pressure Set Button on Unit B →	Unit A Doesn't Ignite Unit B Ignites

* If an 11 or F11 error code flashes on the remote controller, hit the Power Button on the remote controller off and on 2-3 times.
* If (*1) and (*2) cannot be done, the Quick Connect Cord may not be properly connected. Check that the cord is properly connected.

⚠ Caution

Handling after trial operation

• In Freezing areas: If the unit will not be used immediately, close off all gas and water shutoff valves, drain all of the water out of the unit and the plumbing system to prevent the unit and system from freezing, and bleed the gas out of the gas line.
Freezing is not covered by the warranty.

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Lighting Instructions

This water heater does not have a pilot. It is equipped with an ignition device that automatically lights the burner.

1. Read the safety information in the installation manual or on the front of the water heater.
2. Turn off all electrical power to the unit.
3. Do not attempt to light the burner by hand.
4. Turn the gas control manual valve (external to the unit) clockwise to the off position.
5. Wait five minutes to clear out any gas. If the smell of gas remains, stop, and follow the instructions on page 3 of owner's guide.
6. Turn the gas control manual valve counterclockwise to the on position.
7. Turn on electric power to the unit.
8. The unit will now operate whenever hot water is called for. If the unit will not operate, follow the shutdown instructions and call a service technician.

Shutdown Instructions

1. Stop any water demand.
2. Turn off electric power.
3. Turn the gas control manual valve clockwise to the off position.

Should overheating occur, or the gas supply fail to shut off, turn off the gas control manual valve to the appliance.

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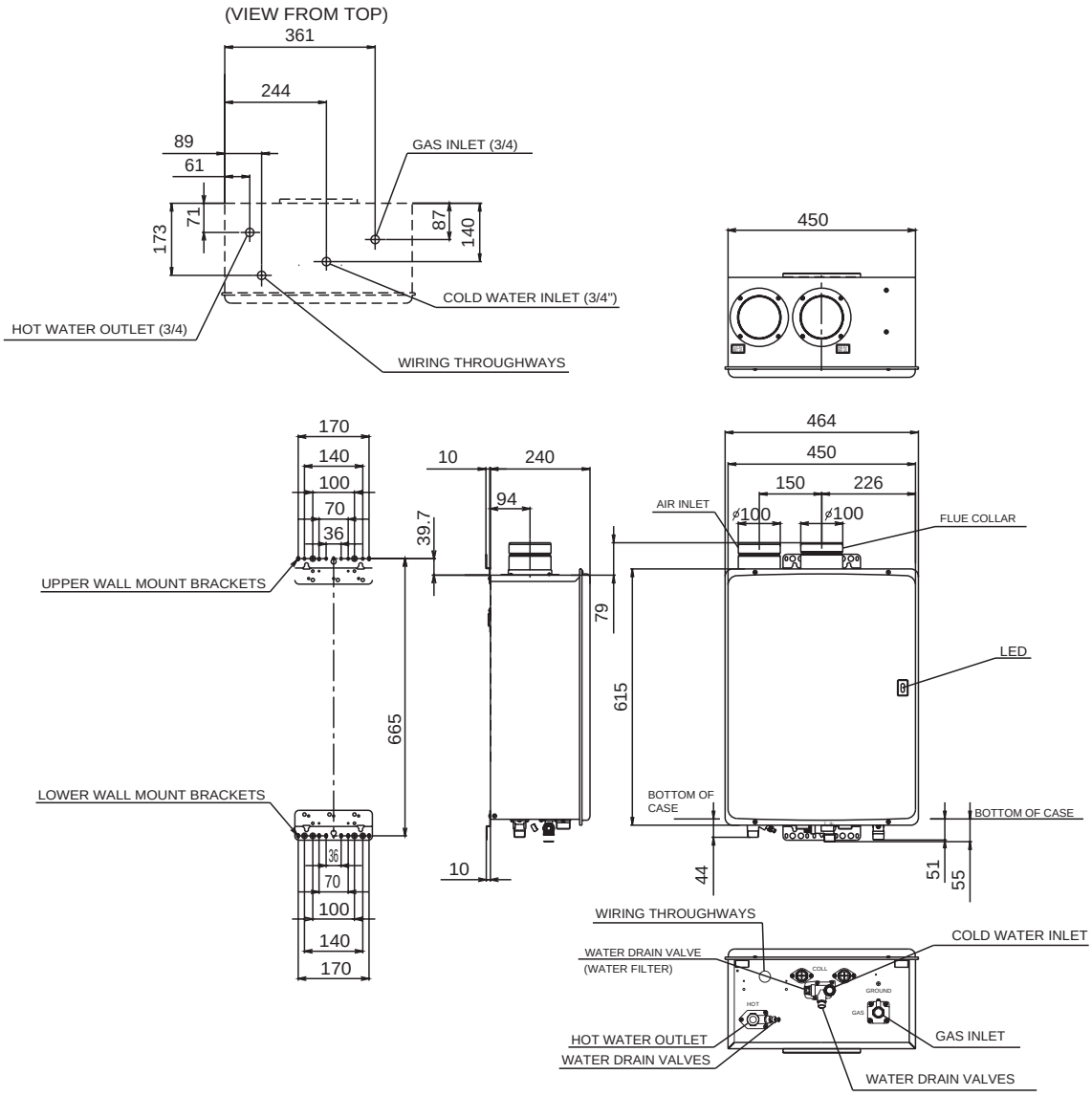
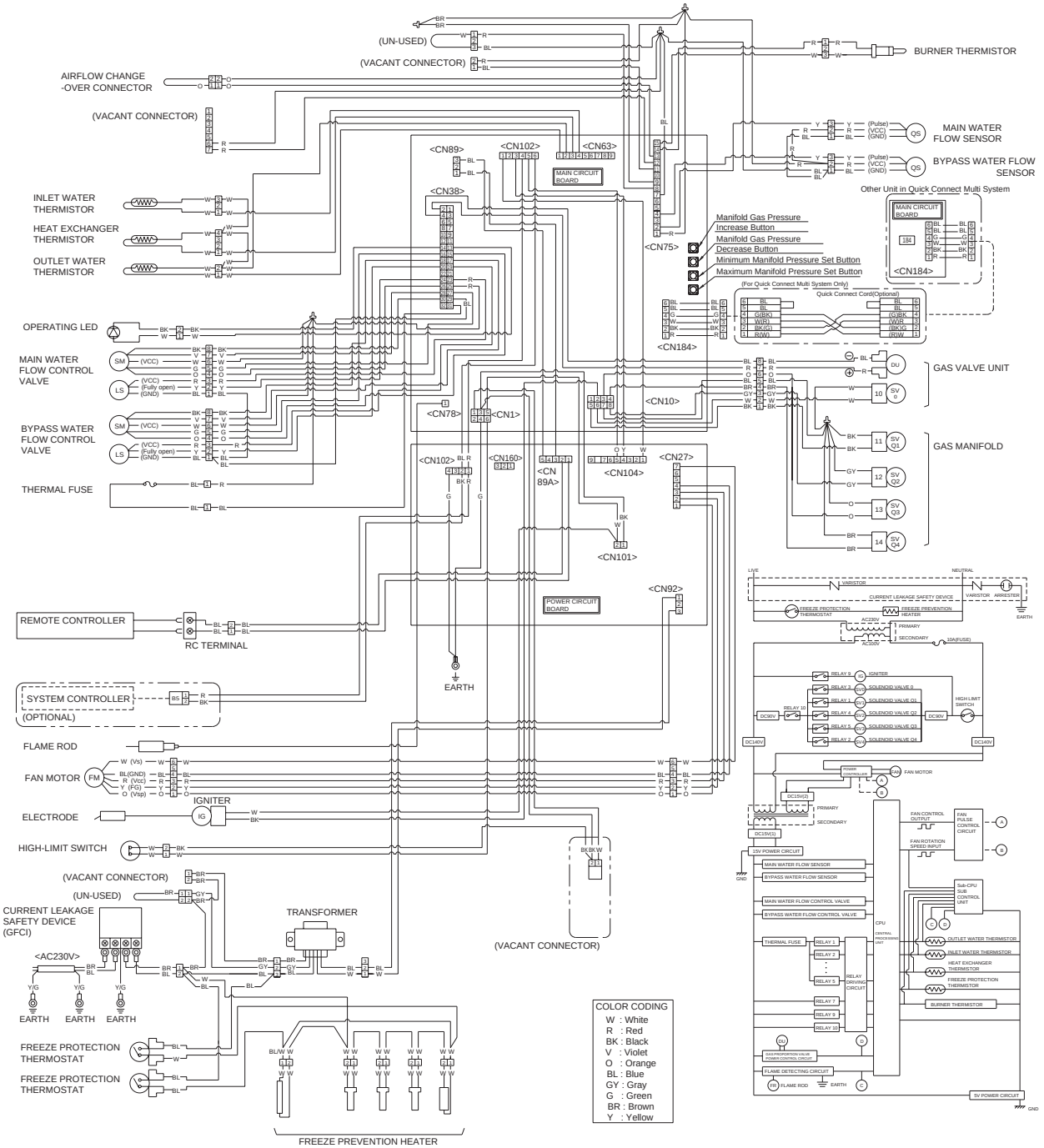
13. Dimensions

WH42, LWH42, WH56, LWH56

(unit: mm)



Wiring Diagram (WH42, LWH42, WH56, LWH56)



14. Remote Controller Installation Manual

For Installers:
Read this installation guide carefully before carrying out installation.

Model Number: RC-7508M

Note

Do not connect power to the water heater before the remote controller has been properly installed.

Included Accessories

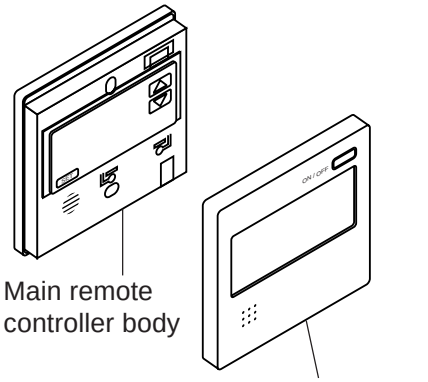
Part	Shape	Q'ty	Part	Shape	Q'ty
Remote Controller		1	Cross recessed flat-head screw		2
Cross recessed flat-head wood screw		2	Wall anchor		2

Remote Controller Installation Procedure

(1) Remove the decorative cover.
(The decorative cover is attached very simply.)

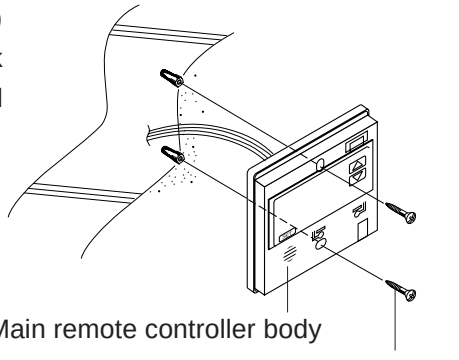
Connect the Y-shaped terminal to the terminal block at the back of the remote controller.

* In the case of exposed wiring (attachment to the wall), first open up the cord intake on the main remote controller body using pliers. (Take care not to damage the board in the process.)



(2) Position the holes (diameter: 6 mm X depth: 25 - 30 mm) to secure the remote controller for the kitchen, and knock in all the wall anchors. Next, secure it using oval-headed wood screws.

* The screws must be tightened manually, and the remote controller secured properly without rattling.



(3) Replace the decorative cover.

(L)WH42_56(16_24)_E Page 24 05.10.4, 1:56 PM Adobe PageMaker 6.5J/PPC

15. Optional Accessories Guide

For Installers:
Read this installation guide carefully before carrying out installation.

15-1. Flue Terminal Installation Manual

Model Numbers:	FF-100-200 FF-100-400 FF-100-700

Icons warning of risk level:	
⚠ WARNING	Denotes content that may result in personal injury or property damage if ignored.
⚠ CAUTION	This symbol warns of hazards which have the immediate potential to result in severe or lethal personal injury or fire.

Prohibited

Be sure to do

Directions for Installers

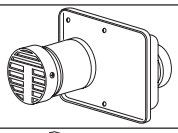
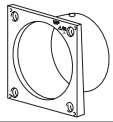
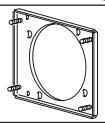
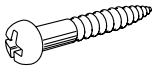
⚠WARNING

- To operate the water heater properly and safely, comply with this installation manual and the installation manuals of any other equipment.
- The flue terminal must be installed in accordance with regulation in force.

- The flue terminal must be installed in accordance with the rules in force.
- Failures and damage caused by erroneous work or work not as instructed in this manual are not covered by the warranty.

15-1-1. Included Accessories

The following accessories are included with the unit. Check for any missing items before starting installation. (They are all attached to the product body.)

Part	Shape	Q'ty	Part	Shape	Q'ty
Flue Terminal		1	Sleeve		1
Wall Flange		1	Wing Nut		4
Tapping Screw		4	Rounded Wood Screw		Long: 2 Short: 2
Wall Anchor		4	Packing (only for products for wall thicknesses of 370mm to 690mm)		1

(L)WH42_56(25_32)_E 25 05.10.4, 1:34 PM

15-1-2. Before Installation

⚠ Caution

Compatibility Check

- Make sure that the flue terminal is compatible with the product it will be installed with. If an improper terminal is used, a fire hazard will be created.

Choosing the Installation Site

- Maintain the proper clearances to combustibles
  The heat and moisture from the water heater may cause corrosion of aluminum materials.
- Install the flue terminal so that it is easily accessible for maintenance from both the indoors and the outdoors.
- Install the flue terminal so that all exhaust is directed to and all intake air is taken from the outdoors.
- Steam or condensed water may drip out of the flue terminal. Dispose of this condensed water according to local codes and in order to prevent injury or property damage.

Check Wall Thickness

- This flue terminal model has four different sizes. Choose the correct model to fit the thickness of the wall that the terminal will pass through.

Model name	Wall thickness
FF-100-200	130 mm to 210 mm
FF-100-400	210 mm to 370 mm
FF-100-700	370 mm to 690 mm

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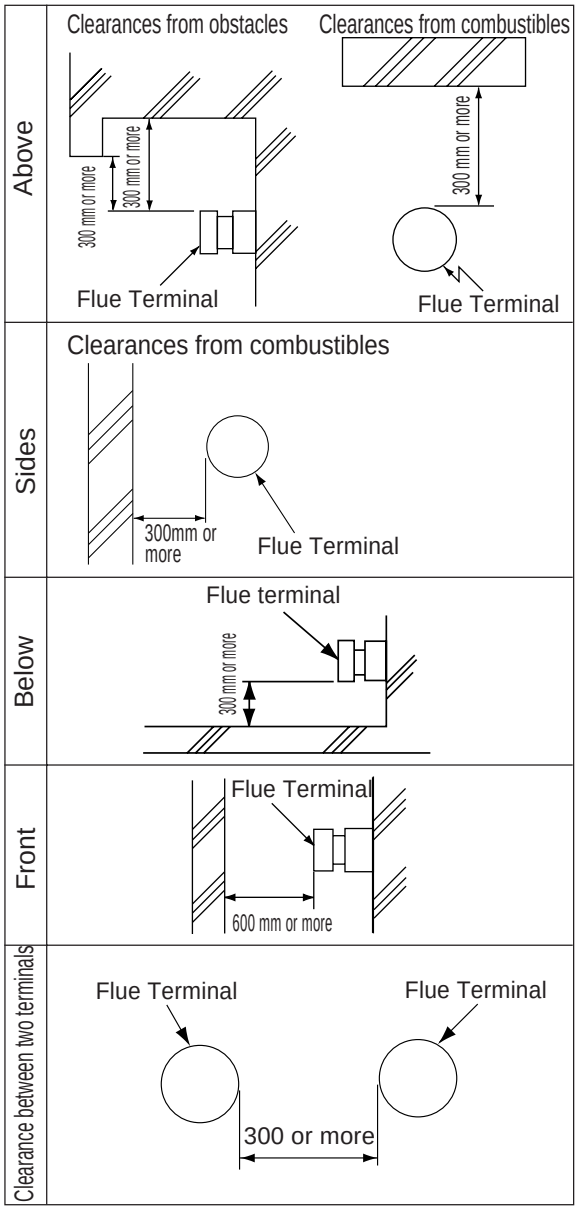
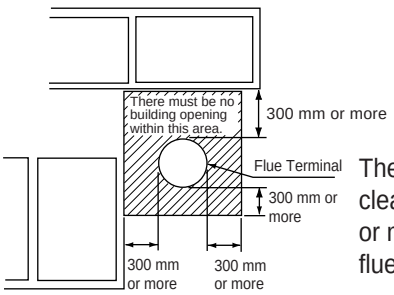
15-1-3. Installation Requirements

Caution

Flue Terminal Clearance Requirements





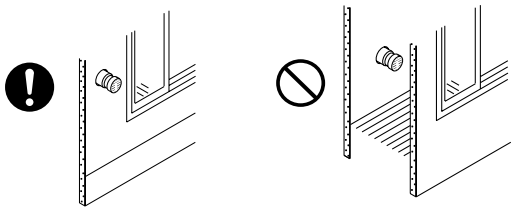
There must be a clearance of 600 mm or more in front of the flue terminal.

- This restriction will not be applied to an area where an effective shield makes a clearance of 600 mm or more in front of the exhaust outlet.

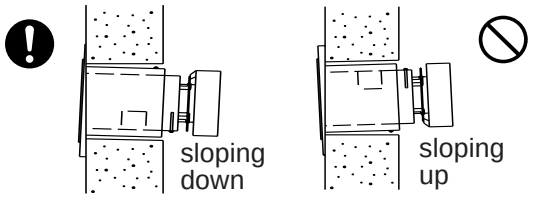
Flue terminal installation precautions

Note the following flue terminal installation requirements.

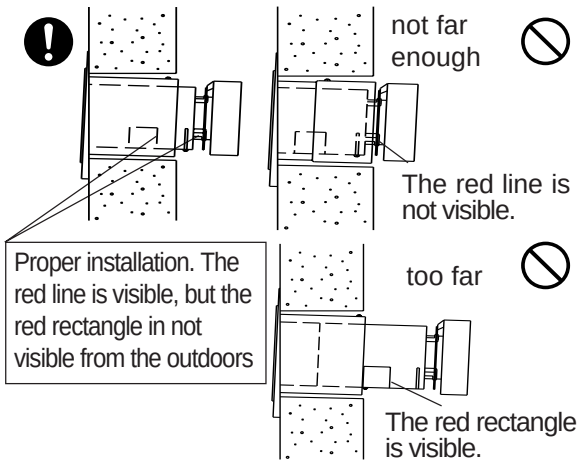
1) Do not install the flue terminal indoors



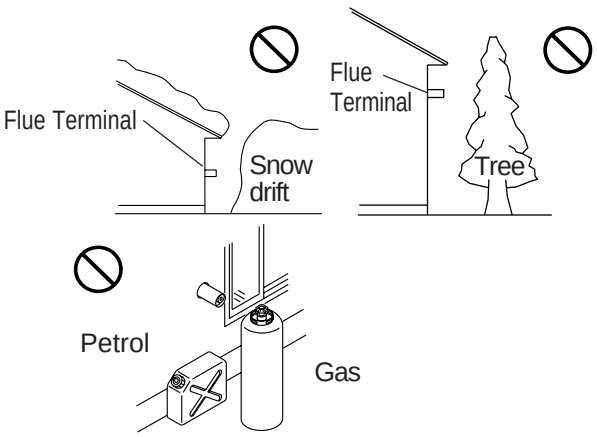
2) Install the flue terminal with a downward slope



3) Install with the proper length protruding through the wall


not far enough
The red line is not visible.
Proper installation. The red line is visible, but the red rectangle in not visible from the outdoors
too far
The red rectangle is visible.

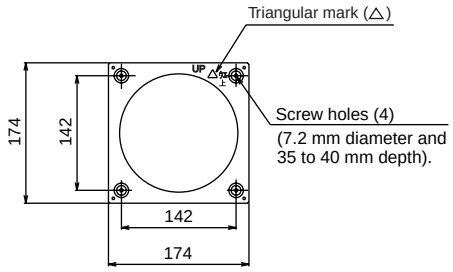
4) Avoid installing the terminal where obstacles will block it



15-1-4. Flue Terminal Installation Procedure

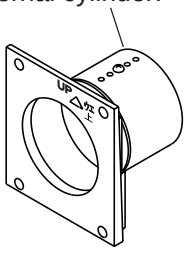
* When drilling, take care not to damage electric wiring, or gas or water piping in walls.

1) Determine the flue terminal installation location and make a 160 mm diameter hole. Install the sleeve into the hole with the triangular mark (△) pointing up. Use the wall anchors and rounded wood screws.

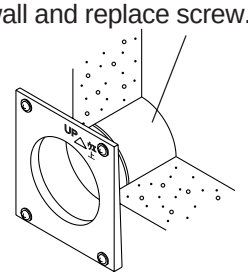


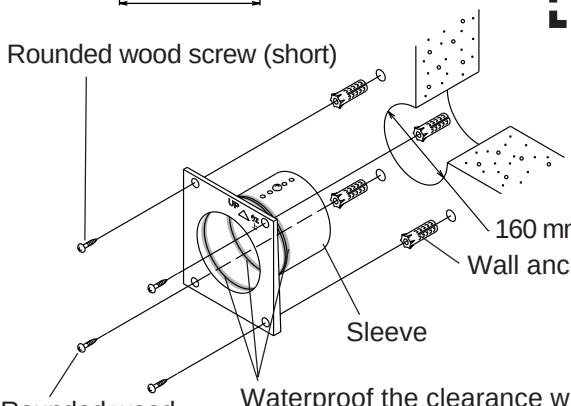
Before installing the sleeve, adjust its length to fit the wall thickness.
(The length can be adjusted in increments of 10 mm.)

Remove this screw and slide out the external cylinder.

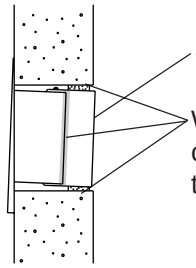


Slide out the external cylinder until it is flush with the external wall and replace screw.

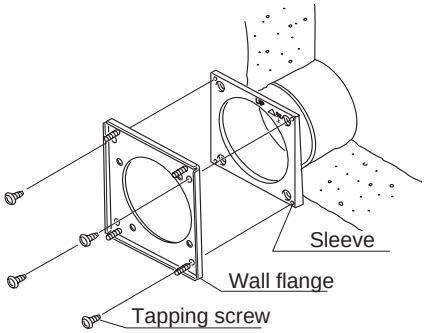




Waterproof the clearance between the sleeve and wall hole with a high temperature sealant.



2) Attach the wall flange to the sleeve.



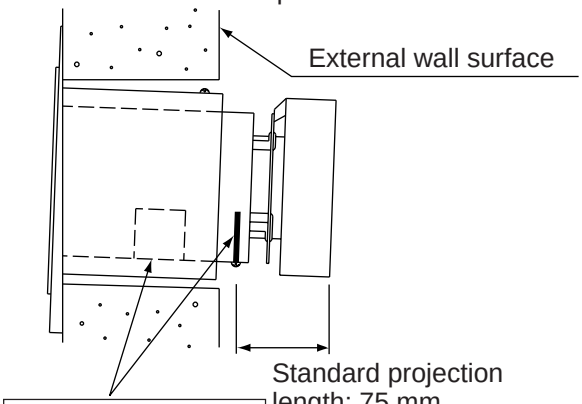
* The proper flange orientation depends on the desired orientation of the flue terminal.
* Unless the flue terminal is installed as in option (1) in the chart to the right, the outlet will need to be adjusted in order to ensure it is oriented in the proper direction.

	Terminal Orientation	Flange Orientation	Outlet Orientation
(1)	Up Intake / Exhaust Down	174 mm 210 mm	Top Bottom
(2)	Up Exhaust / Intake Down	174 mm 210 mm	Incorrect / Correct
(3)	Up Exhaust Intake Down	174 mm 210 mm	Incorrect / Correct
(4)	Up Intake Exhaust Down	The terminal cannot be installed in this orientation.	

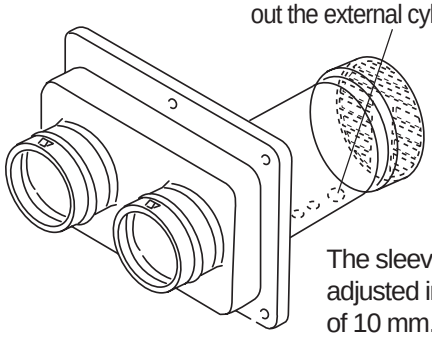
3) Adjusting the flue terminal length

Make sure the flue terminal has been set to the appropriate length and the outlet is oriented properly to prevent combustion and operation problems.

The length of the flue terminal must be adjusted to fit with the wall thickness before the installation is completed.


External wall surface
Standard projection length: 75 mm
The red line should be visible.
The red rectangle should not be visible from the outdoor.

Remove this screw and slide out the external cylinder.

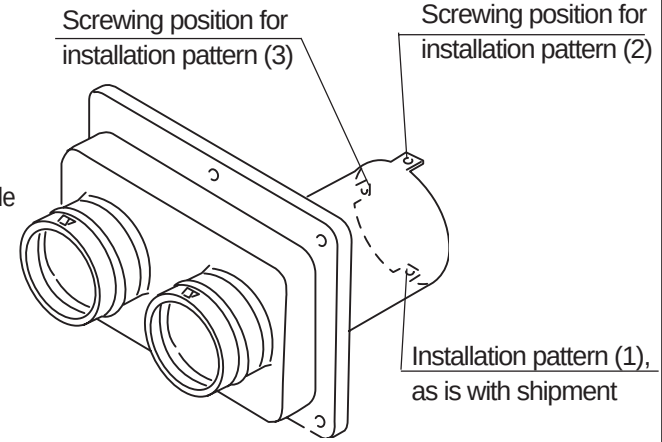


The sleeve length can be adjusted in increments of 10 mm.

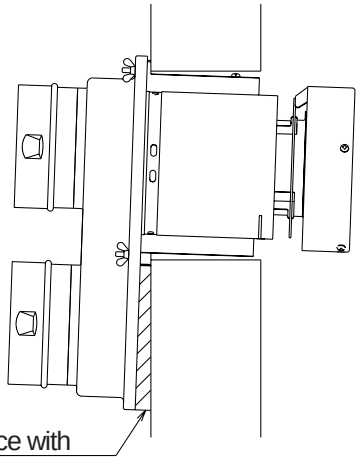
Note: If the flue terminal will be installed in orientations (2) or (3) from the table on the previous page, the outlet cylinder will have to be rotated so that it is oriented properly.

<Screw positions>

The following figure shows the points to screw the cylinder to for the different installation orientations.

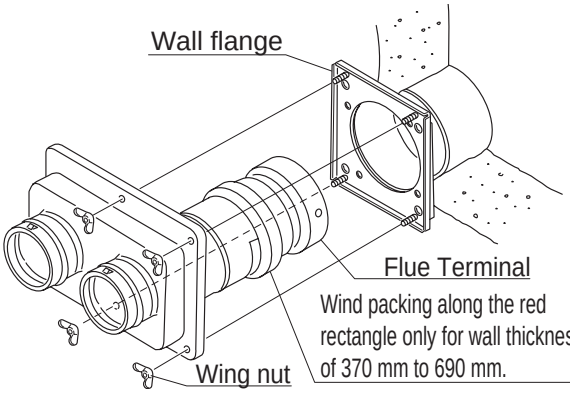

Screwing position for installation pattern (3)
Screwing position for installation pattern (2)
Installation pattern (1), as is with shipment

4) Attach the flue terminal to the wall flange.



Fill in clearance with sealant

The following figure shows installation pattern (1).



* Installation pattern (3) yields a clearance between the flue terminal and the wall surface. Fill this clearance with a high temperature sealant.

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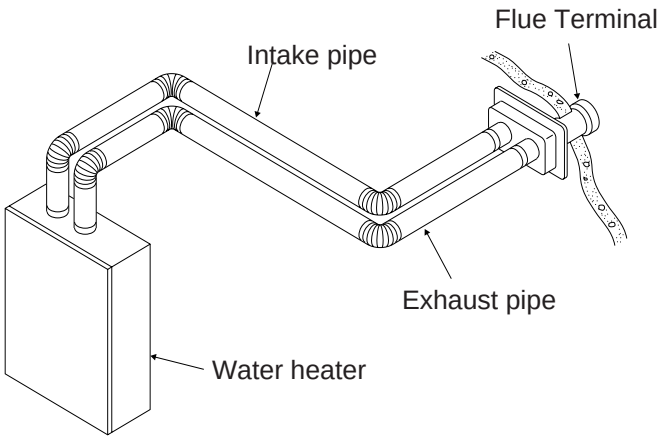
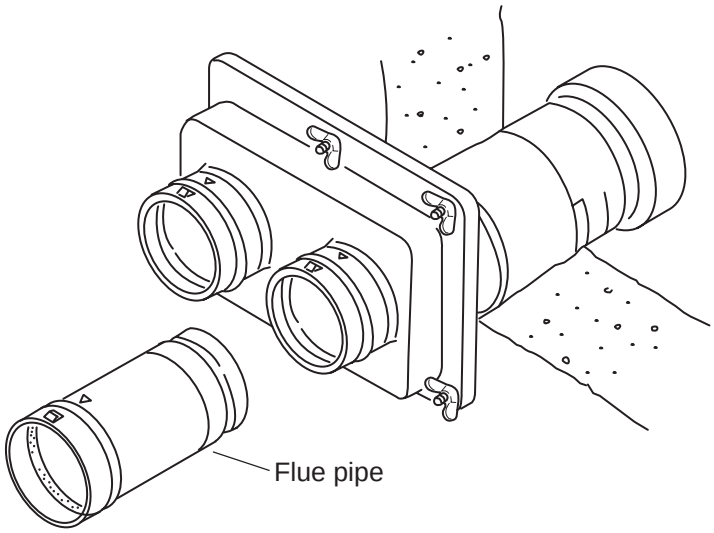
5) Connect the heater and the flue terminal using 100 diameter supply and exhaust pipes.

Make sure the connections are secure and take measures to prevent exhaust gas from leaking.
Seal any connections that are not gas tight using a high temperature silicone sealant.



Connect the flue pipe to the flue terminal as follows:



Connecting: following procedure A to C.
On the flue terminal side, make sure that "△ " mark of stopper ring in the flue terminal is not lined up with "▽" mark on the terminal socket.

A) In case of the flue pipe with red line mark, insert the flue pipe into the socket of the flue terminal until red line is identical with the edge of the socket.
B) In case of the flue pipe without line mark, the flue pipe has a swelling part formed around on it to fix the inserted length, or lock in position.
Insert the flue pipe into the other side surely until locking position.
C) In case of the flue pipes with other colored line mark, insert the flue pipe into the socket up to the line marked and shall be fixed with aluminum tape.

Caution: ensure the O-ring is not damaged during this process.

Removing:
On the flue terminal side, matching "△ " mark which on stopper ring at the flue terminal side with "▽" mark on the terminal socket.
Turn stopper ring at the flue terminal to release the locking in position, and then pull the flue pipe out.

Caution: ensure the O-ring is not damaged during this process.

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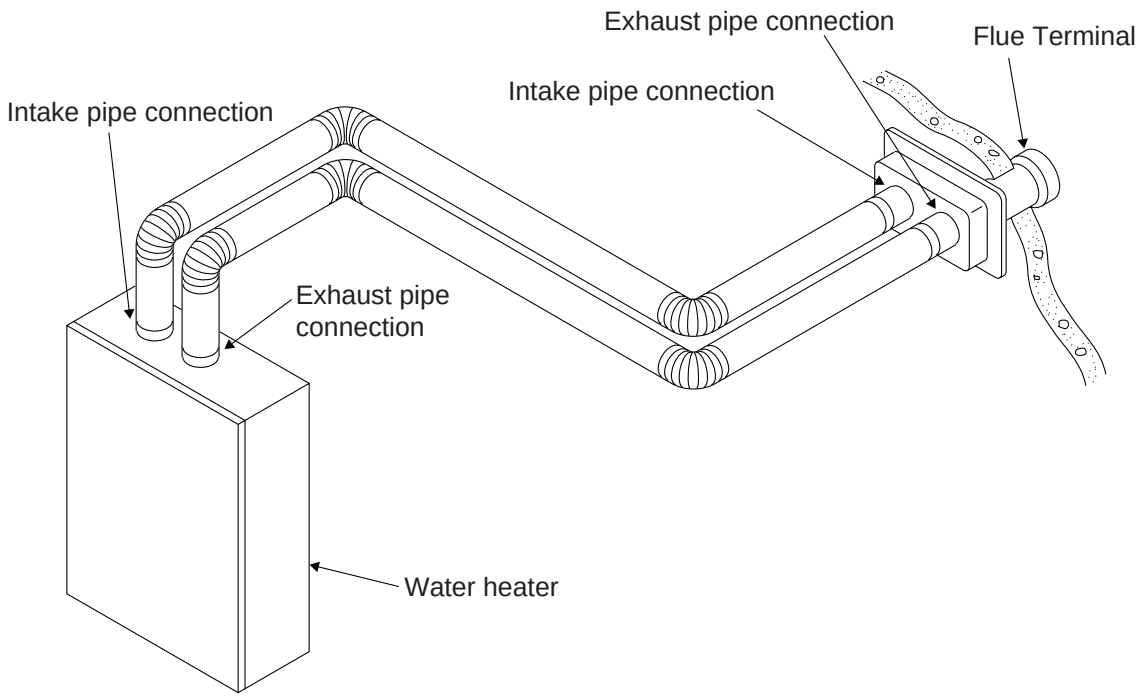
15-1-5. Installation Overview



Flue pipe installation precautions

- Do not extend the flue pipe longer than the maximum limits as stated in the installation manual. The flue lengths longer than the stated maximum are dangerous and may cause a fire or explosion.
- Avoid installing the flue pipe in an enclosure if possible.
- Do not install a damper on the intake or exhaust pipe.
- Do not install the flue terminal indoors.
- Use 100 mm diameter type the flue pipe from the water heater all the way to the flue terminal.
- Make sure that the flue pipe is sealed gas tight and is securely connected so that it cannot be easily dislodged.
- Make the vertical section of the flue pipe as short as possible (1 m or less is suggested)
- Support the flue pipe at appropriate interval with hangers.
  Installer must prepare the hunger for 100 mm diameter type, in case of necessity.
  Refer to the flue pipe manufacture's installation instructions for the proper interval.
- Steam or condensed water may drip out of the flue terminal. Dispose of this condensed water according to local codes and in order to prevent injury or property damage.

Protection from condensed water accumulation

- Slope the intake and exhaust pipes at a 1/50 grade down towards the termination.
- Avoid sags or slack in the flue pipe.
- If the flue terminal will be installed higher than the water heater, make the vertical section directly above the water heater as short as possible, and slope down to the terminal. Do not have another vertical section after the horizontal section begins.

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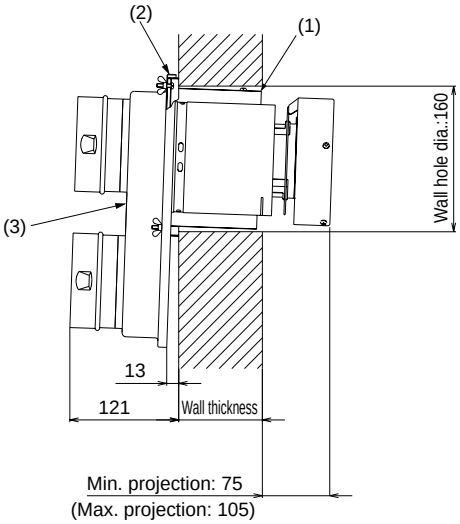
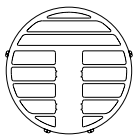
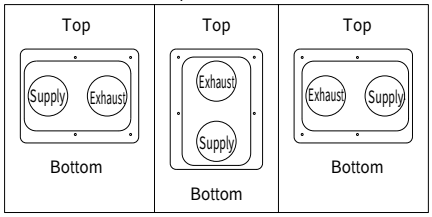
15-1-6. Dimensions

After installation (Unit : mm)

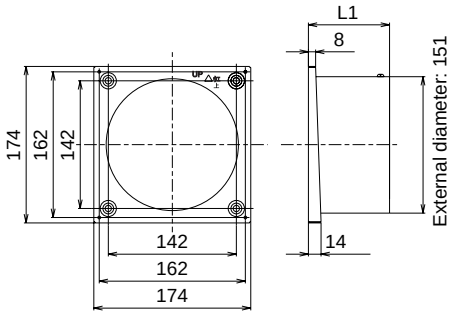




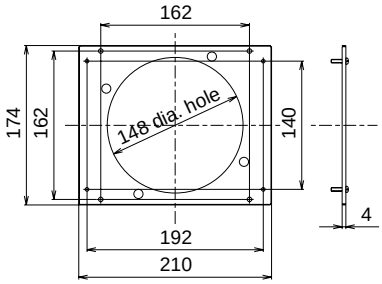
Installation orientation options



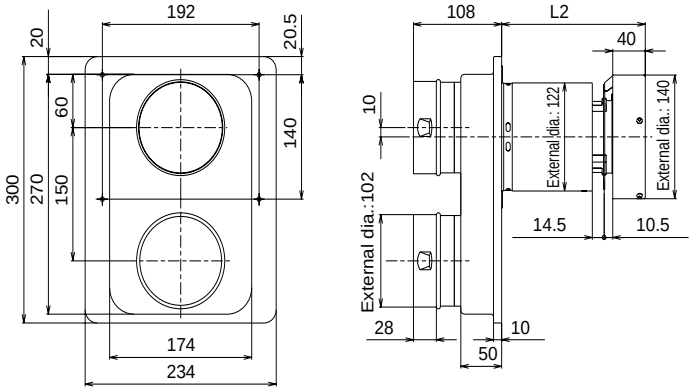
(1) Sleeve



(2) Wall flange



(3) Flue Terminal



Dimension Table (mm)

Model Numbers	wall thickness	L1	L2
FF-100-200	130 to 210	130 to 210	216 to 296
FF-100-400	210 to 370	210 to 370	296 to 456
FF-100-700	370 to 690	370 to 690	456 to 776

Note: L1 and L2 can be adjusted in increments of 10 mm.

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15-2. Flue Terminal Installation Manual

Model Numbers:	FF-100A-200 FF-100A-400 FF-100A-700

Icons warning of risk level:	
⚠ WARNING	Denotes content that may result in personal injury or property damage if ignored.
⚠ CAUTION	This symbol warns of hazards which have the immediate potential to result in severe or lethal personal injury or fire.

Prohibited

Be sure to do

Directions for Installers

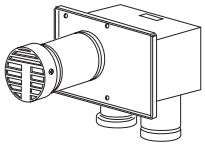
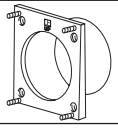
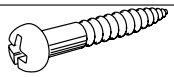
⚠WARNING

- To operate the water heater properly and safely, comply with this installation manual and the installation manuals of any other equipment.
- The flue terminal must be installed in accordance with regulation in force.

- The flue terminal must be installed in accordance with the rules in force.
- Failures and damage caused by erroneous work or work not as instructed in this manual are not covered by the warranty.

15-2-1. Included Accessories

The following accessories are included with the unit. Check for any missing items before starting installation. (They are all attached to the product body.)

Part	Shape	Q'ty	Part	Shape	Q'ty
Flue Terminal		1	Sleeve		1
			Wing Nut		4
Tapping Screw		1	Rounded Wood Screw		4
Wall Anchor		4	Packing (only for products for wall thicknesses of 370 mm to 690 mm)		1

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15-2-2. Before Installation

Caution

Compatibility Check

- Make sure that the flue terminal is compatible with the product it will be installed with. If an improper terminal is used, a fire hazard will be created.

Choosing the Installation Site

- Maintain the proper clearances to combustibles
  The heat and moisture from the water heater may cause corrosion of aluminum materials.
- Install the flue terminal so that it is easily accessible for maintenance from both the indoors and the outdoors.
- Install the flue terminal so that all exhaust is directed to and all intake air is taken from the outdoors.
- Steam or condensed water may drip out of the flue terminal. Dispose of this condensed water according to local codes and in order to prevent injury or property damage.

Check Wall Thickness

- This flue terminal model has four different sizes. Choose the correct model to fit the thickness of the wall that the terminal will pass through.

Model name	Wall thickness
FF-100A-200	130 mm to 210 mm
FF-100A-400	210 mm to 370 mm
FF-100A-700	370 mm to 690 mm

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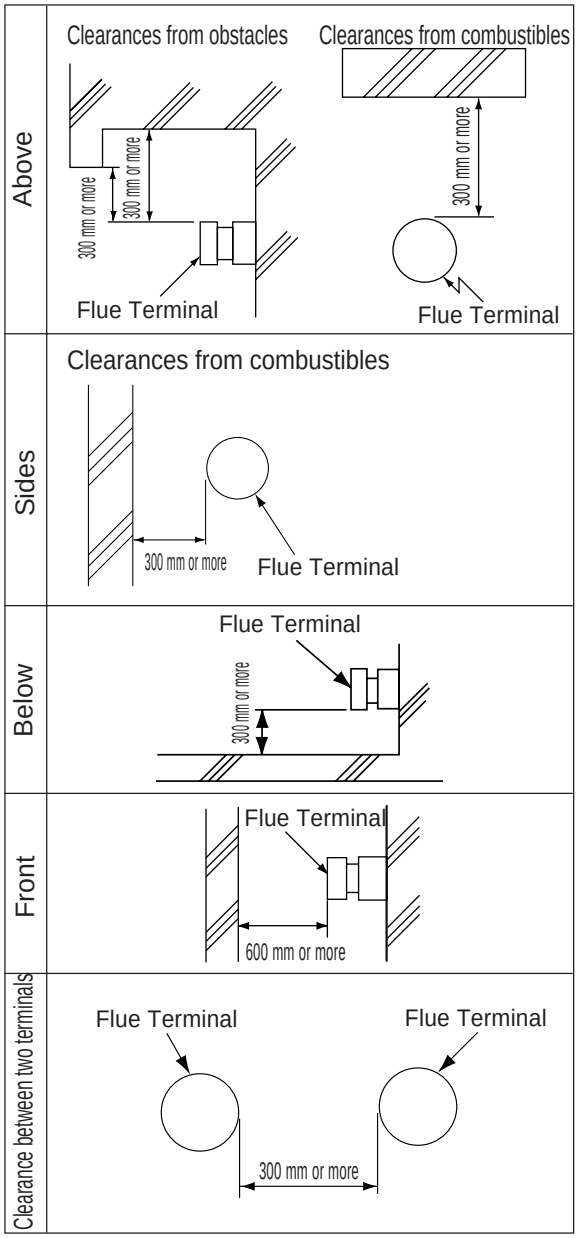
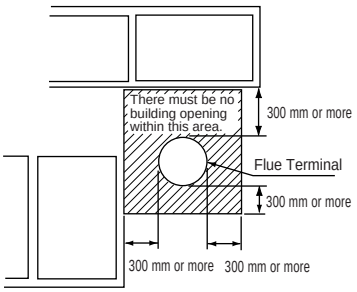
15-2-3. Installation Requirements

Caution

Flue Terminal Clearance Requirements





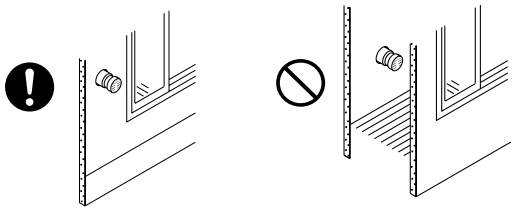
There must be a clearance of 600 mm or more in front of the flue terminal.

- This restriction will not be applied to an area where an effective shield makes a clearance of 600 mm or more in front of the exhaust outlet.

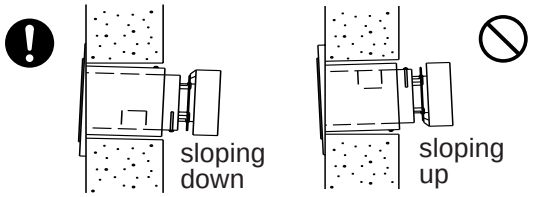
Flue terminal installation precautions

Note the following flue terminal installation requirements.

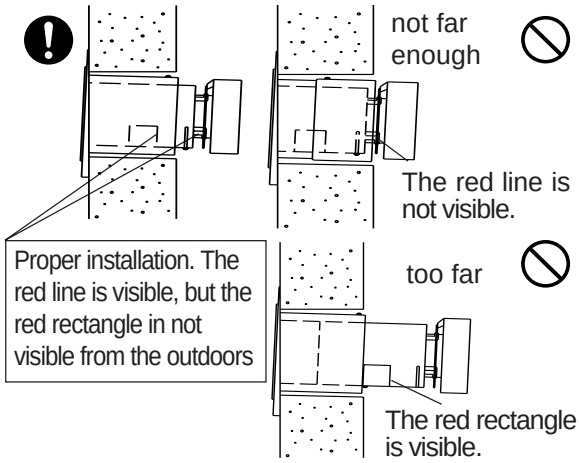
1) Do not install the flue terminal indoors



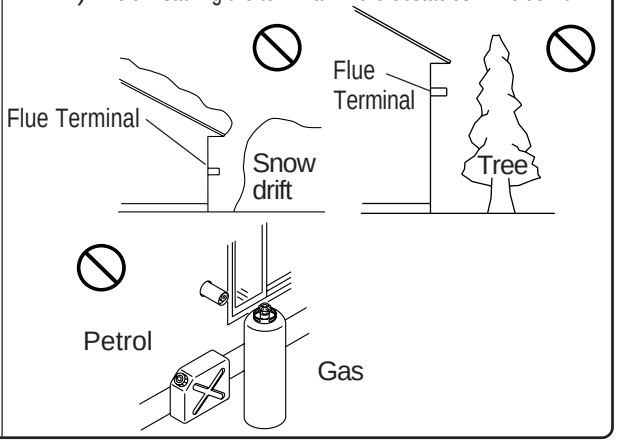
2) Install the flue terminal with a downward slope



3) Install with the proper length protruding through the wall


not far enough
The red line is not visible.
Proper installation. The red line is visible, but the red rectangle in not visible from the outdoors
too far
The red rectangle is visible.

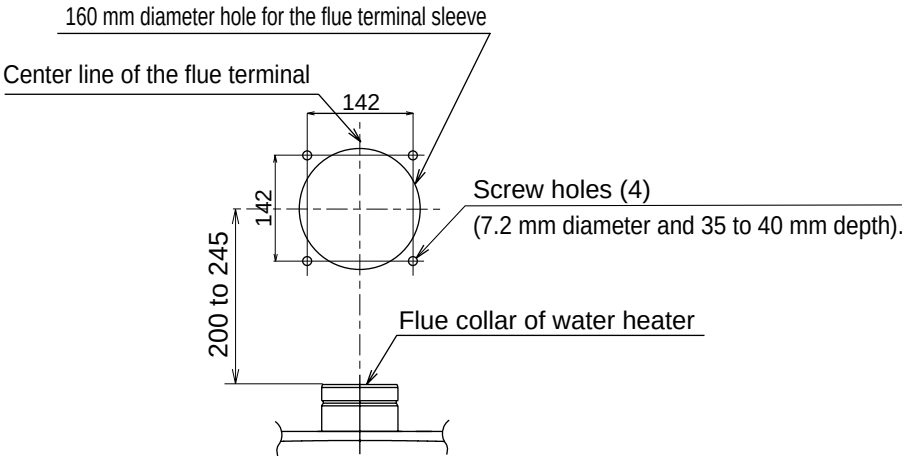
4) Avoid installing the terminal where obstacles will block it



15-2-4. Flue Terminal Installation Procedure

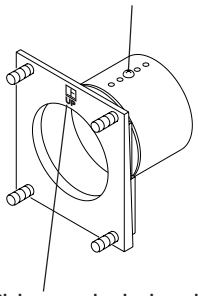
* When drilling, take care not to damage electric wiring, or gas or water piping in walls.

1) Determine the flue terminal installation location and make a 160 mm diameter hole in the wall for the sleeve and 7.2 mm diameter holes for the screws to hold the sleeve.


160 mm diameter hole for the flue terminal sleeve
Center line of the flue terminal
142
142
200 to 245
Screw holes (4)
(7.2 mm diameter and 35 to 40 mm depth).
Flue collar of water heater

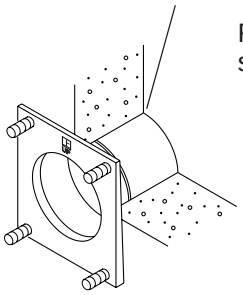
2) Adjust the sleeve length to fit the wall thickness. Install the sleeve with the symbol on the top side.

Remove this screw and slide out the external cylinder.

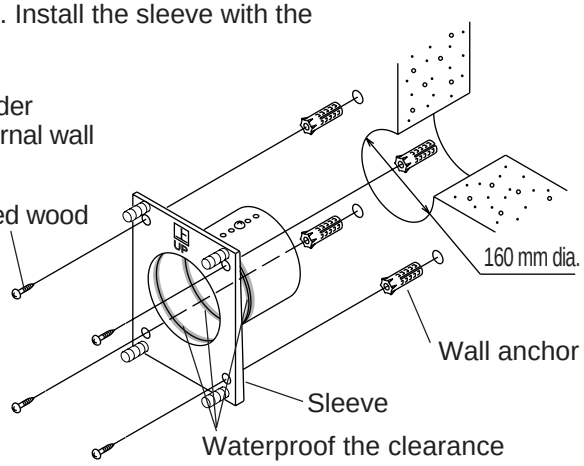


This symbol should be on the top

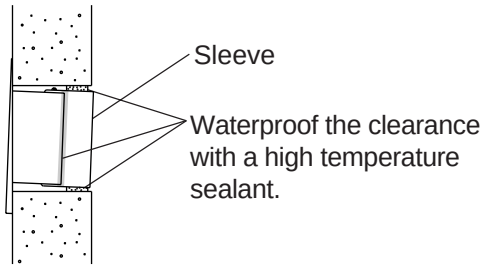
Slide out the external cylinder until it is flush with the external wall and replace the screw.



Rounded wood screw



3) Waterproof the clearance between the sleeve and wall with a high temperature sealant.



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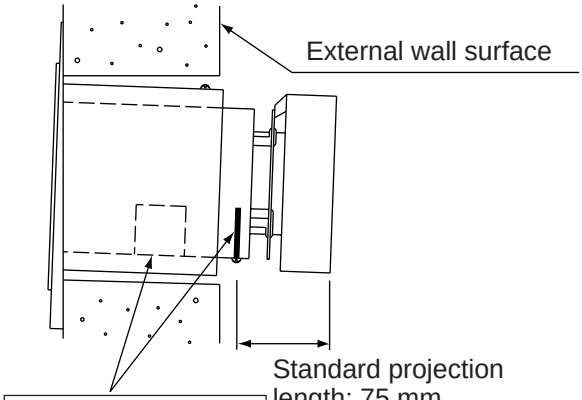
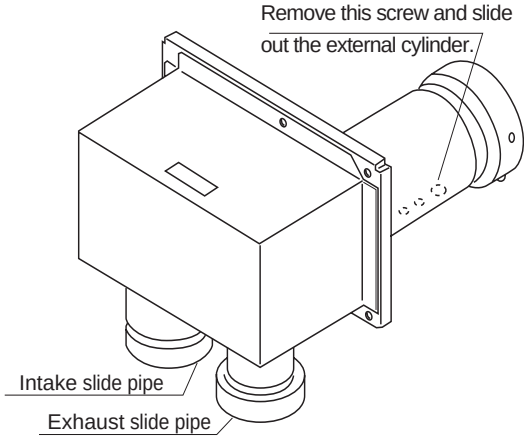
4) Adjusting the flue terminal length

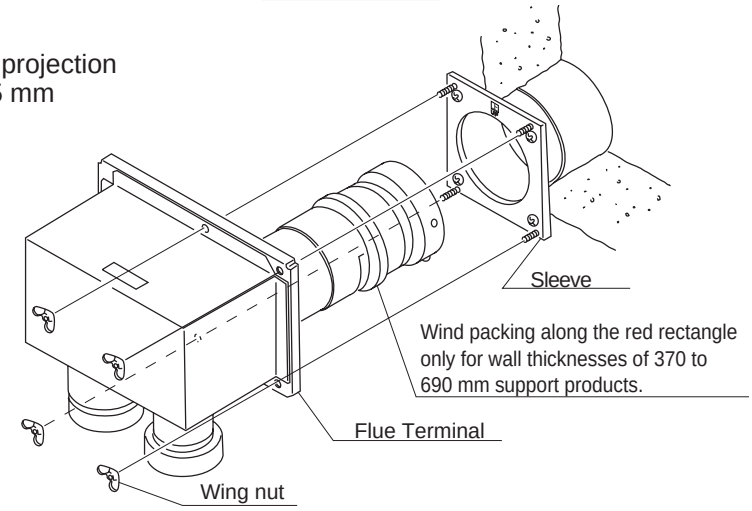
Combustion and operation problems my result if the flue terminal isn't set to the appropriate length.

The length of the flue terminal must be adjusted to fit the wall thickness before the installation is completed.


External wall surface
Standard projection length: 75 mm
The red line should be visible.
The red rectangle should not be visible from the outdoors.



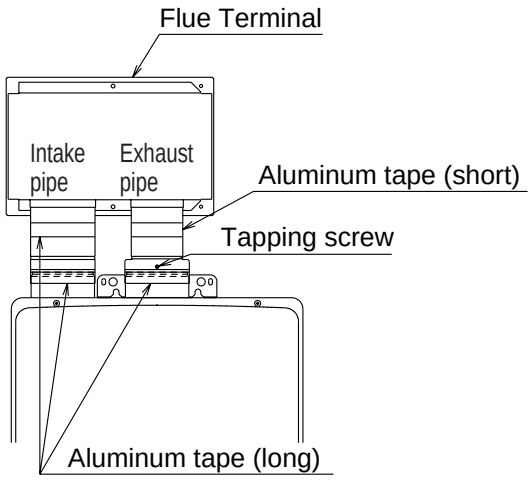
At this point, make sure the supply and exhaust slide pipes have been inserted into the flue terminal.


Sleeve
Wind packing along the red rectangle only for wall thicknesses of 370 to 690 mm support products.
Flue Terminal
Wing nut

5) Extend the supply and exhaust slide pipes to connect the flue terminal to the water heater.

Make sure the connections are secure and take measures to prevent exhaust gas from leaking. Use high temperature sealant if necessary.

(1) Drill a hole (3.0 dia.) through the water heater exhaust the flue collar to meet with the hole in the exhaust slide pipe of the flue terminal.
(2) Seal connections between the water heater and the flue terminal with high temperature sealant to ensure exhaust gas won't leak.
(3) Screw the exhaust slide pipe of the flue terminal to the flue collar of the water heater using the included tapping screw.
(4) Cover all of the connections between the water heater and the flue terminal with the included aluminum tape.
* Note that the aluminum tape by itself is not sufficient to make the connection gas tight and prevent the terminal from becoming disconnected from the water heater.
(5) After completing the installation, perform a test run of the water heater according to the installation manual.



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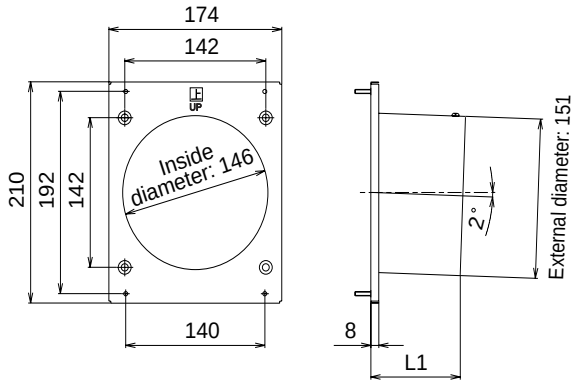
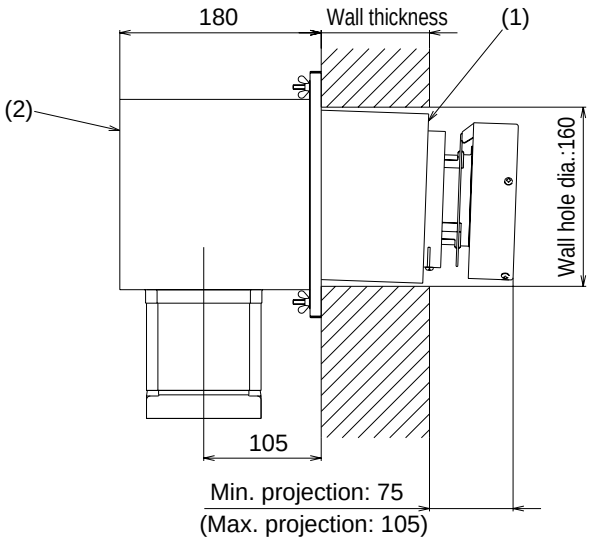
15-2-5. Dimensions

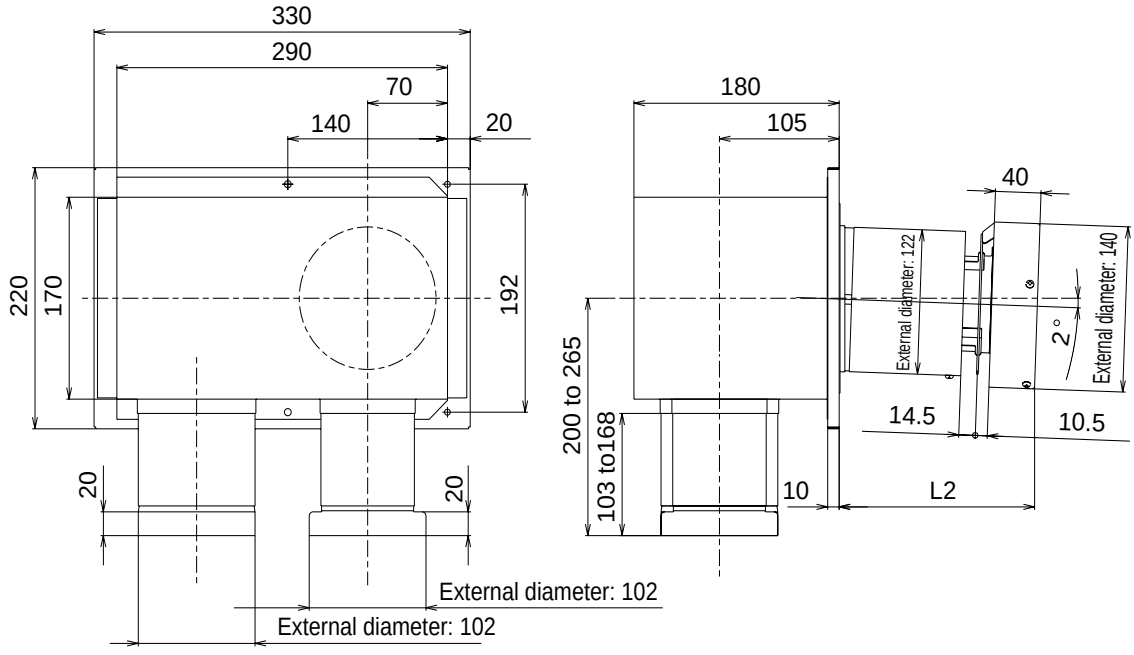
(1) Sleeve



After installation



(2) Flue Terminal



Dimension Table (mm)

Model Numbers	wall thickness	L 1	L 2
FF-100A-200	130 to 210	130 to 210	216 to 296
FF-100A-400	210 to 370	210 to 370	296 to 456
FF-100A-700	370 to 690	370 to 690	456 to 776

Note: L1 and L2 can be adjusted in increments of 10 mm.

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16. Servicing

Important Notes

To ensure the continued efficient and safe operation of the boiler it is recommended that it is checked and serviced at regular intervals. The frequency of servicing will depend upon the particular installation and usage, but in general once a year should be enough.

It is the Law that any servicing is carried out by a competent person.

When replacing a part on this appliance, use only spare parts that you can be assured conform to the safety and performance specification that we require. Do not use reconditioned or copy parts that have not been clearly authorised by NORITZ.

Before commencing with a service or replacement of parts the boiler should be isolated from the electrical supply and water supply and the gas supply should be turned off at the gas service cock.

All routine servicing requirements can be achieved by the removal of the front panel only. Remove the four screws on the front panel and lift off.

For access inside the appliances screwdriver can be used.

To remove chassis front.

Unless stated otherwise any part removed during servicing should be replaced in the reverse order to removal.

Servicing should always include the removal of any debris from the condensate pipe and siphon.

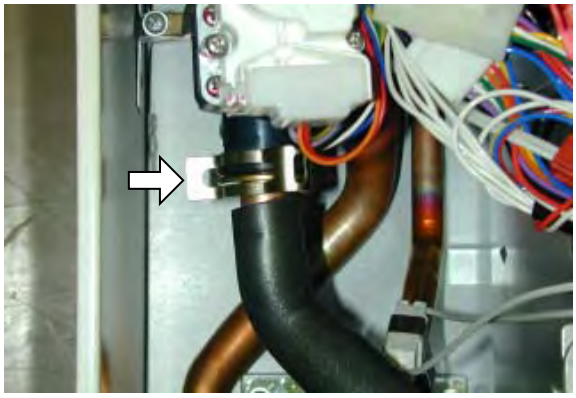
After completing any servicing of gas carrying components, ALWAYS test for gas soundness and carry out a functional test of the controls.

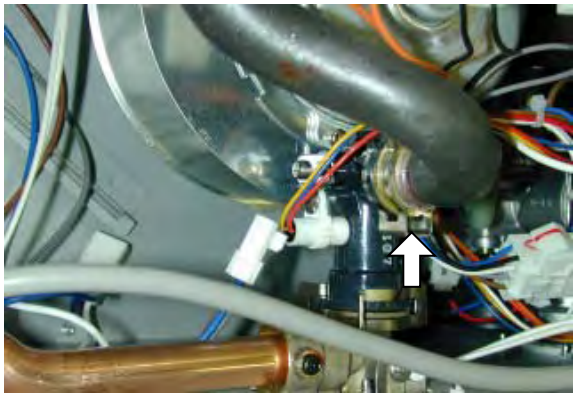
It is not necessary for the burner parts and heat exchanger parts to be cleaned up.

17. Disassembly of each part

1. Removing the transformer

(1) Remove the 2 quick fasteners and remove the bypass pipe.





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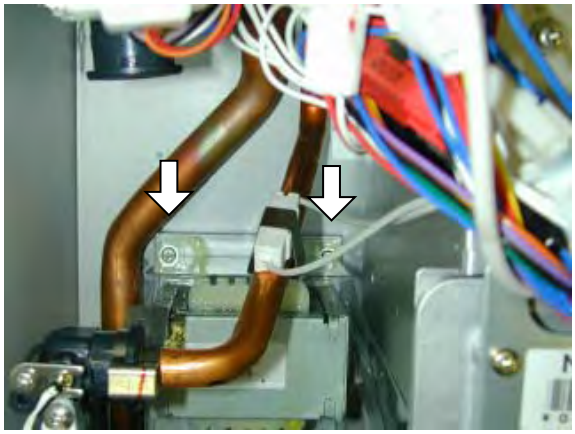
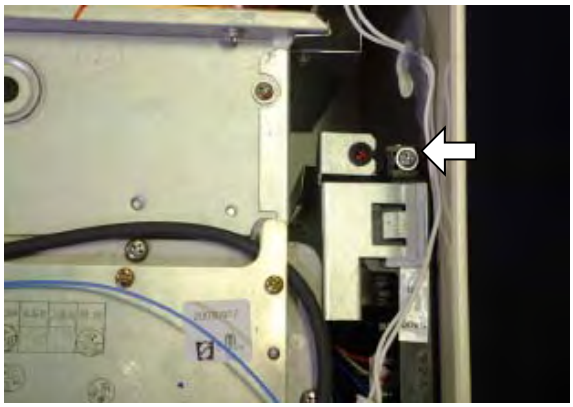
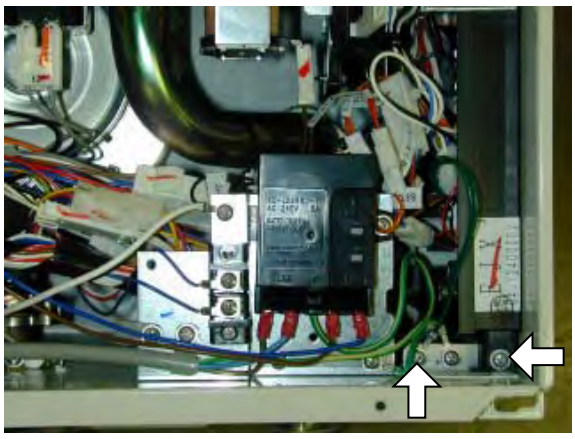
(2) Remove the 2 locking screws of the transformer, then pull out.



2. Removing the electric board

(1) Remove the locking screws at the top and bottom and ground screw, then pull board out.

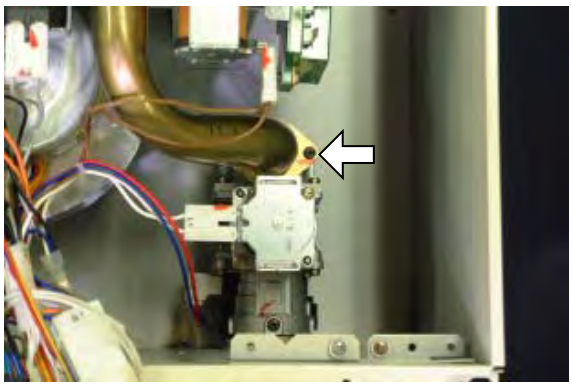




3. Removing the manifold

- Remove the electric board and fixing plate of the ground-fault circuit interrupter in advance.

(1) Remove the locking screw of the gas electromagnetic valve and the manifold pipe.



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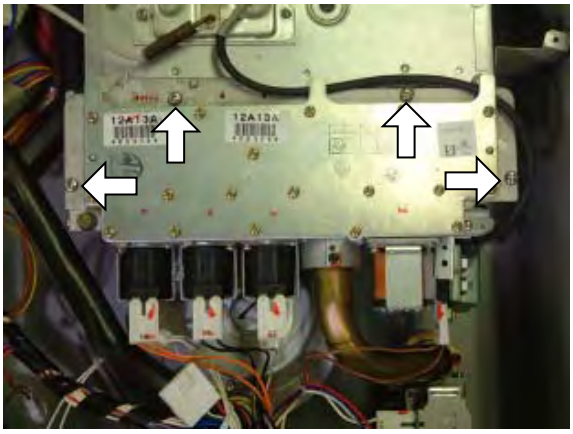
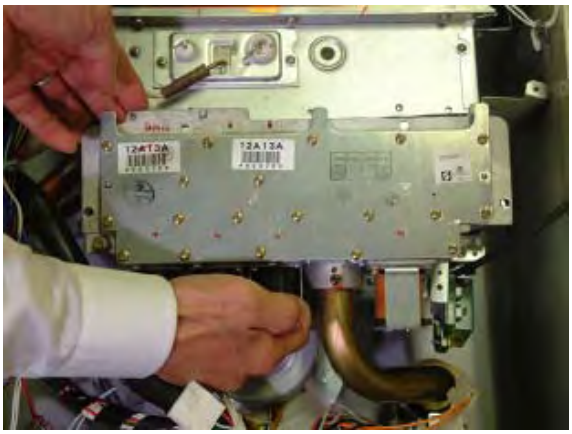
(2) Remove the fasten terminal of the gas electromagnetic valve, then remove the 4 manifold locking screws.



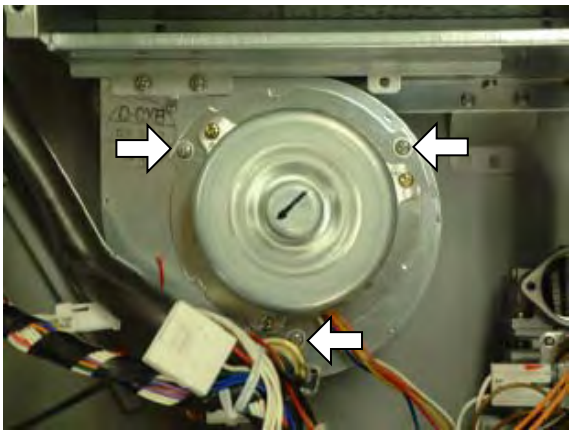
(3) Pull up and remove the manifold.



4. Removing the hot-water supply fan

- Remove the electric board, manifold and intake gas pipe in advance.

(1) Remove the 3 fan locking screws, then pull out.



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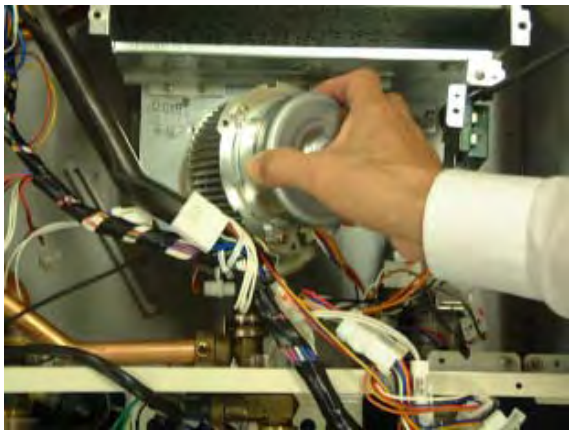
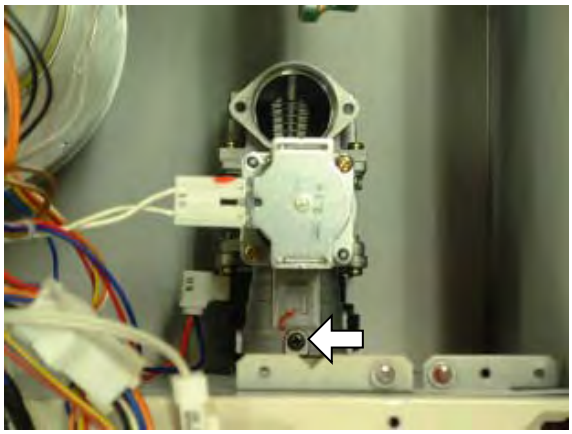
(2) Pull out the fan motor.



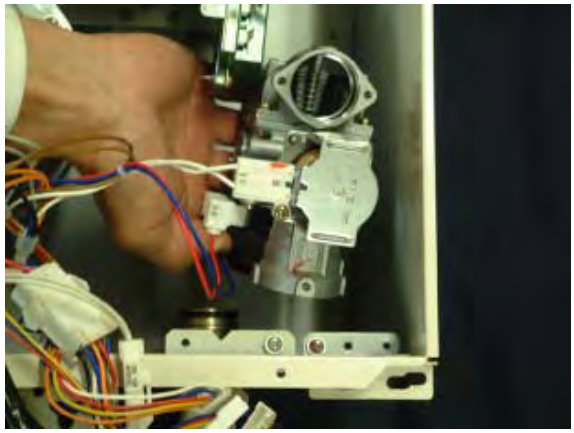
5. Removing the gas electromagnetic valve block

• Remove the electric board and manifold in advance.

(1) Remove the gas electromagnetic valve locking screw.



(2) Pull up the gas electromagnetic valve to the upper section and remove it.



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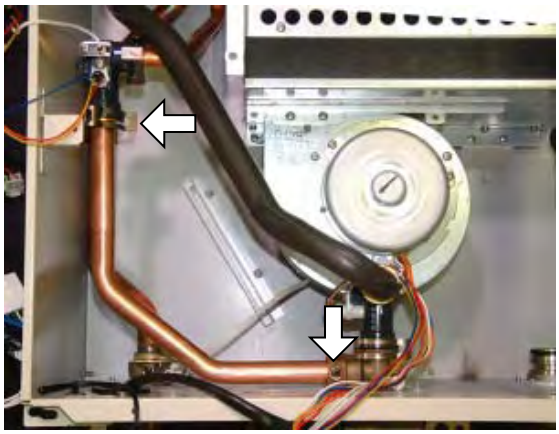
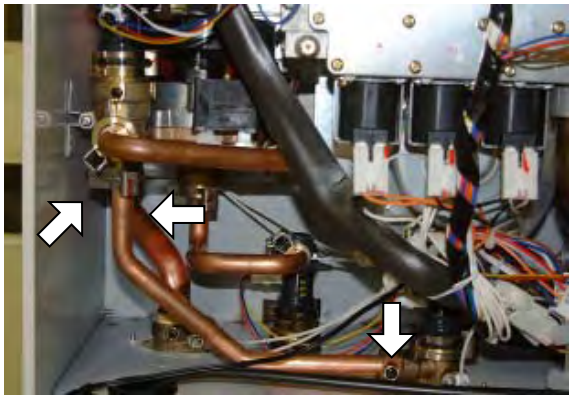
6. Removing the mixing tube block

• Remove the electric board and connectors in advance.

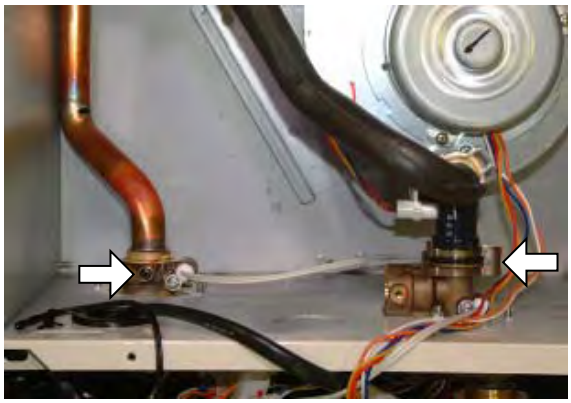
(1) Remove the locking screw of the intake water pipe and the locking quick fastener of water flow sensor set 3 of the heat exchanger, then pull out the intake water pipe.



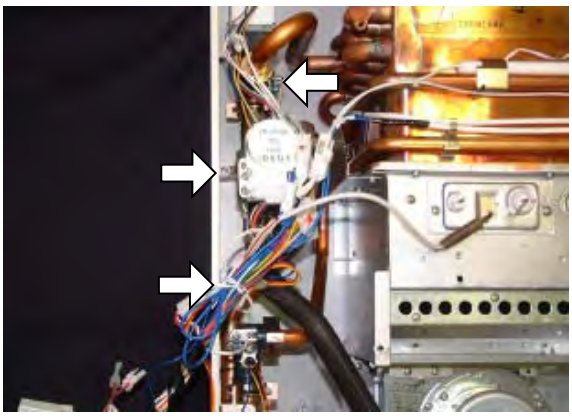
■ For Quick-discharge type
Remove the intake water pipe locking screw and 2 locking fasteners of the non-return valve, then remove the intake water pipe and pull out the pump discharge pipe.



(2) Remove the quick fastener of the water flow sensor set 1 and the discharge hot-water pipe locking screw.

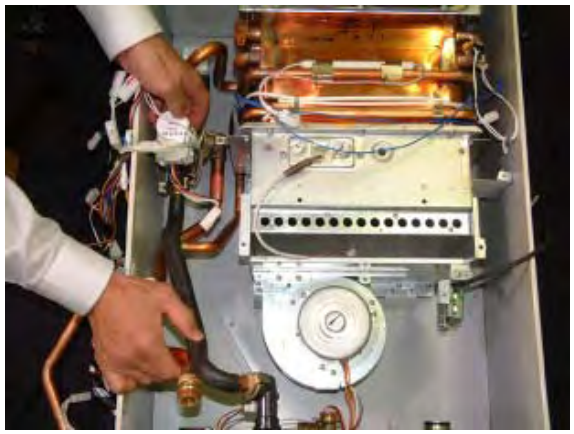


(3) Remove the connecting quick fasteners of the water flow sensor set 3 adjustment valve and the water flow servo set 2, and the mixing body block locking screw.



(L)WH42_56(39_44)_E Page 43 05.9.26, 7:48 PM Adobe PageMaker 6.5J/PPC

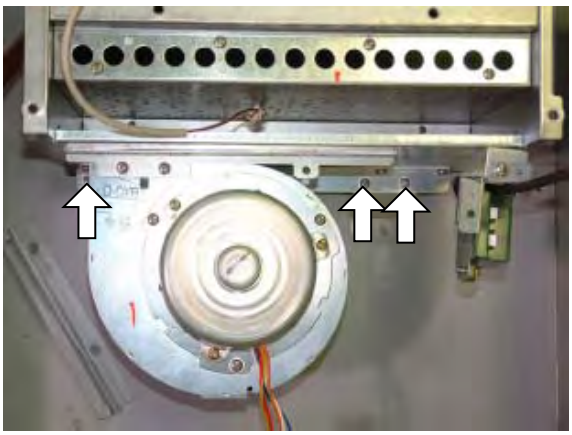
(4) Pull up the mixing tube block to the upper section and remove it.



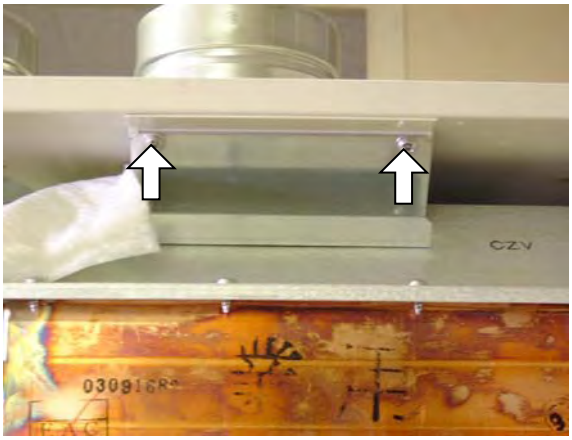
7. Removing the heat exchanger

- Remove the electric board, manifold, mixing tube block and connectors in advance.

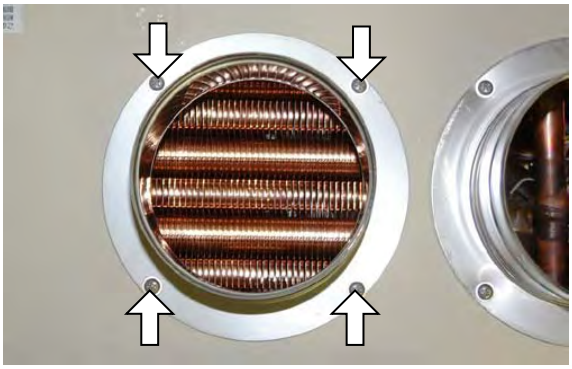
(1) Remove the 3 locking screws at the bottom of the burner case.



(2) Remove the 2 case top plate locking screws.



(3) Remove the 3 locking screws at the flue collar and adapter, pull out the heat exchanger.



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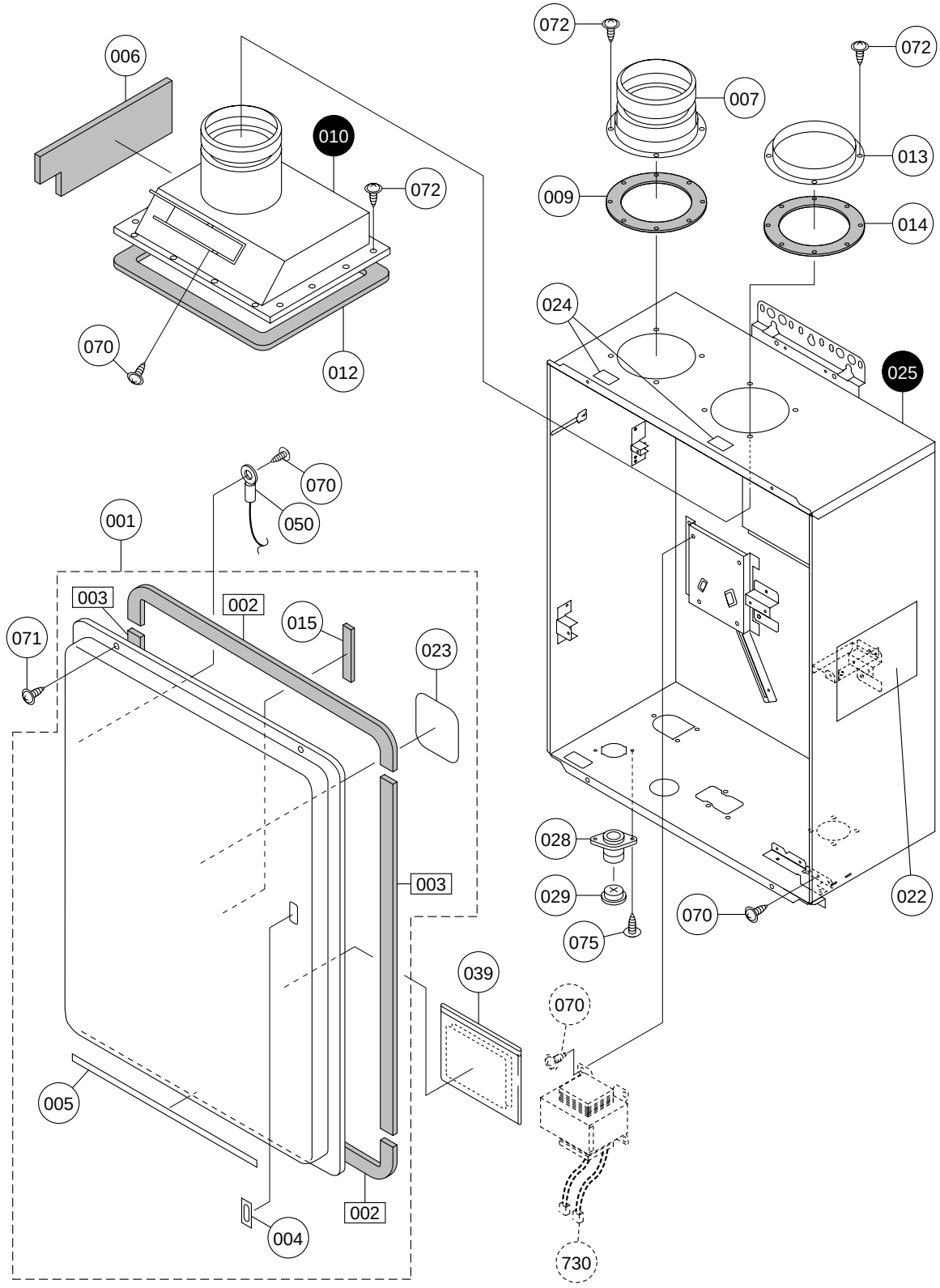
18. Servicing parts lists

External outfitting WH42AD,WH56AD



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External outfitting WH42AD,WH56AD

Part Nos.	Part Names	Order Nos.	Q'ty/unit
001	WH56AD Front set-AS	SKA7263	1
002	Front packing S AAP	AAPL015	2
003	Front packing L AAP	AAPL017	2
004	Lamp seal plate DEC	DECK008	1
005	Piping label EDM	EDMK004	1
006	Heat insulator CZV	CZVL002	1
007	Intake pipe ELE	ELEF001	1
009	Intake pipe packing EHK	EHKL084	1
010	Exhaust box FF CZV	CZVF001	1
012	Exhaust joint packing DHN	DHNL003	1
013	Intake flange BCU	BCUF022	1
014	Exhaust cylinder flange packing ELE	ELEL001	1
015	Front acoustic foam CZV	CZVL003	1
022	Caution label FF AD ELE	ELEK077	1
023	Plug insulation sheet CRU	CRUK002	1
024	Intake/Exhaust label EJM	EJMK031	1
025	Case FF AD ELE	ELEA016	1
028	Wiring coupling BXK	BXKA022	1
029	Grommet FF EHK	EHKA348	1
039	Connection diagram label AD ELE	ELEK063	1
050	Connecting cord 2 DMB	DMBJ010	1
070	Cross recessed round-head collar N-tapping screw 4X8	SAD6181	
071	Cross recessed truss type3 EVERTIGHT tapping screw with PW 4X12	SAB6510	
072	Cross recessed round-head collar N-tapping screw 4X10	SAD6182	
073	Cross recessed round-head collar N-tapping screw 4X12	SAD6183	
075	Cross recessed round-head collar type3 EVERTIGHT tupping screw 4X12	SAD6453	

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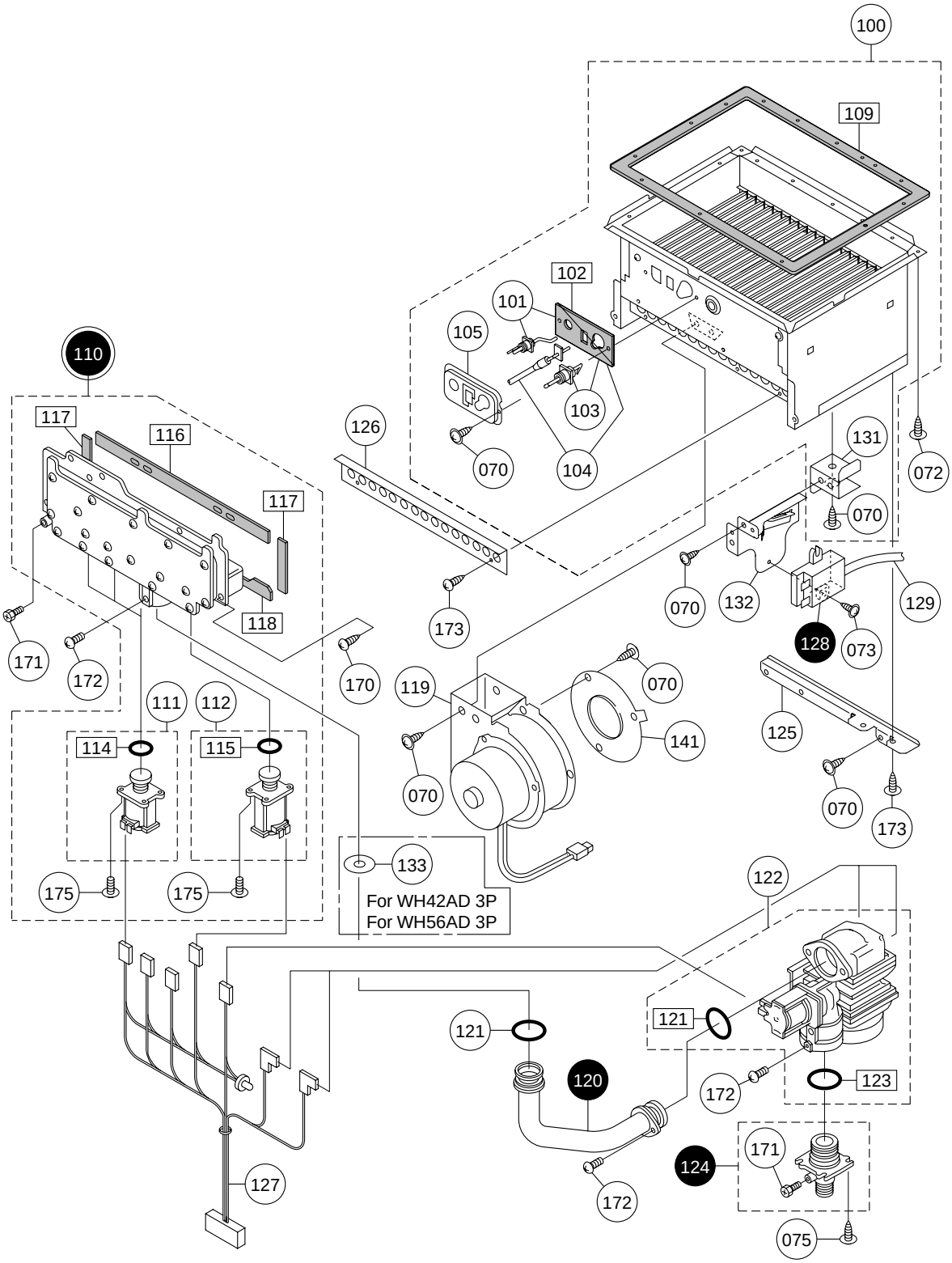
Combustion unit and gas route WH42AD,WH56AD



Combustion unit and gas route WH42AD,WH56AD

Part Nos.	Part Names	Order Nos.	Q'ty/unit
100	Combustion tube set EAC SET-V	SBP7302	1
101	Flame rod DLK SET-V	SBA7506	1
102	Plug packing(for N) DLK	DLKL012	1
103	Ignition plug Q(N)SET-V	SBA7504	1
104	Burner sensor DLK SET-V	SBA7505	1
105	Plug fixing plate(for N) DLK	DLKC009	1
109	Suction air joint packing DHN	DHNL002	1
110	Manifold set 15 DHN SET-AS	SAR7812	1<3P>
	Manifold set 24 DHN SET-AS	SAR7574	1<2H>
111	Solenoid S16L CRU SET-AS	SAQ7346	3
112	Solenoid S24L CRU SET-AS	SAQ7406	1
114	O-ring S30 type 1A	SAD6433	3
115	O-ring S-38	SAD6372	1
116	Manifold seal packing top CRP	CRPL002	1
117	Manifold seal packing side CRP	CRPL004	2
118	Manifold seal packing bottom CRP	CRPL003	1
119	Fan moter Q CXB	CXBF030	1
120	Manifold pipe DHN	DHNE015	1
121	O-ring P25.5	SAB1512	2
122	Gas mech. S24DQ CRP SET-V	SAQ7708	1
123	O-ring JASO 2028A	8590109	1
124	Gas fitting 20ASET ELE	ELEE001	1
125	Mounting plate for burner case DLT	DLTC001	1
126	Main damper 11 CRP	CRPC052	1
127	Conduit R10 DEK	DEKJ014	1
128	Igniter AGV	AGVJ007	1
129	High-voltage cord 470	SAC1229	1
131	Mounting plate for igniter EAC	EACC011	1
132	Mounting plate for igniter DTJ	DTJA015	1
133	Manifold orifice plate φ11 ELE	ELEE005	1<3P>
141	Bell-mouth φ44 CRU	CRUC045	1
170	Cross recessed round-head type3 EVERTIGHT tapping screw 5X16	SAB6001	
171	Cross recessed hexagon head machine screw	SAC6082	
172	Cross recessed round-head machine screw M4X8	SAD6373	
173	Cross recessed round-head N-tapping screw 4X8	6347606	
175	Cross recessed round-head SPAKmachine screw with guide M4X12	SAD6466	

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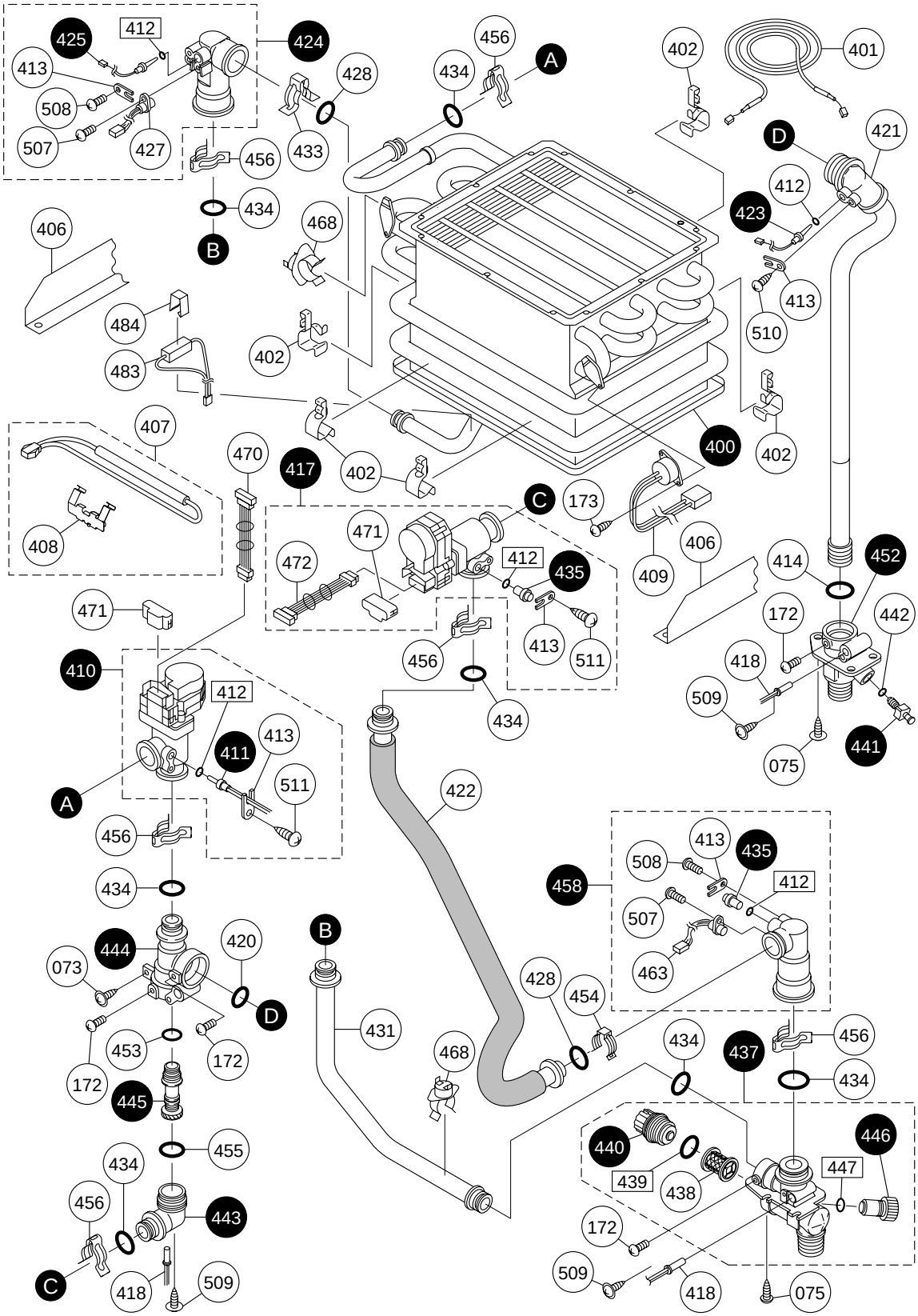
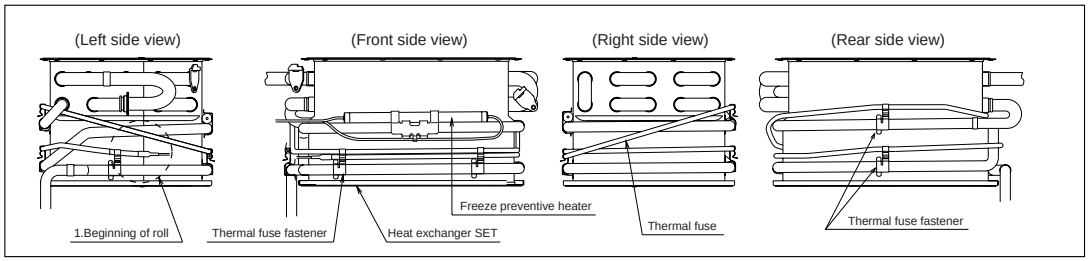
Hot-water feed route WH42AD,WH56AD



Hot-water feed route WH42AD,WH56AD

(Thermal fuse rounding procedure)



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Hot-water feed route WH42AD,WH56AD

Part Nos.	Part Names	Order Nos.	Q'ty/unit
400	Heat exchanger EJM SET-AS	SKA7139	1
401	Thermal fuse DHN SET-V	SBA7398	1
402	Thermal fuse fastener CXD	CXDH003	5
406	Thermal fuse cover DHN	DHNA014	2
407	Freeze preventive heater Q DJW SET-V	SKA7037	1
408	Heater fastener EHK	EHKH001	1
409	Remaining flame safety device 120 DJP	DJPH002	1
410	Water flow servo set 2 DZT	DZTD011	1
411	Heat exchanger thermistor-300 BWC	BWCD098	1
412	O-ring P4C	1323709	5
413	Thermistor holding plate ALS	ALSD088	5
414	O-ring P20C	3059502	1
417	Water flow servo set 1 DZT	DZTD010	1
418	Freeze preventive heater 3 DJW	DJWH003	3
420	O-ring P22C	7573308	1
421	Hot-water feed pipe DHN	DHND010	1
422	Bypass pipe EAC	EACD003	1
423	Hot-water thermistor-300 BWC	BWCD096	1
424	Water flow sensor set 3 DUV	DUVD019	1
425	Water inlet thermistor-300 BWC	BWCD097	1
427	Water outlet magnetic sensor BWC	BWCD090	1
428	O-ring P12.5C	3359808	2
431	Water inlet pipe EAC	EACD001	1
433	Quick fastener 13-22	SAD6537	1
434	O-ring P16C	3223302	7
435	Shut-off cock AXG	AXGD089	2
437	Water inlet fitting 20A set EAC	EACD006	1
438	Water filter (SUS) EGB	EGBD032	1
439	O-ring 16DF BRQ	BRQL008	1
440	Water filter cover DTJ	DTJD006	1
441	Drain cock CRU	CRUD003	1
442	Hot-water resistant O-ring P3	SAD6633	1
443	Mixing coupling EAC	EACD007	1
444	Mixing body EAC	EACD013	1
445	Mixing cylinder BWC	BWCD035	1
446	QMF safety valve A(S)	SAA2811	1
447	Hot-water resistant O-ring P9	SAD6635	1
452	Hot-water outlet fitting HGH	HGHD101	1
453	O-ring P11C	1326503	1
454	Quick fastener 12.7	6340202	1
455	O-ring JASO 2026 type4 C	SAA6483	1
456	Quick fastener 16A	6340300	6
458	Water flow sensor set 1 DUV	DUVD017	1
463	Magnetic sensor BWC	BWCD093	1
468	Thermostat BVU	BVUH002	2
470	Conduit 86 DZT	DZTJ008	1
471	Waterproof cover CZL	CZLD041	2
472	Servo motor cable conduit (86) DZT	DZTJ009	1
483	Dummy heater for 240V DJW	DJWH004	1
484	Heater fastener M AJB	AJBL002	1
507	Cross recessed truss P TIGHT screw 4X10	SAB6339	
508	Cross recessed round-head P TIGHT screw 4X14	SAA6473	
509	Cross&straight recessed round-head collar type3 S TIGHT tapping screw 4X8	SAD6455	
510	Cross&straight recessed type3 S TIGHT tapping screw 4X8	6381600	
511	Cross recessed round-head P TIGHT screw 4X14	SAC6300	

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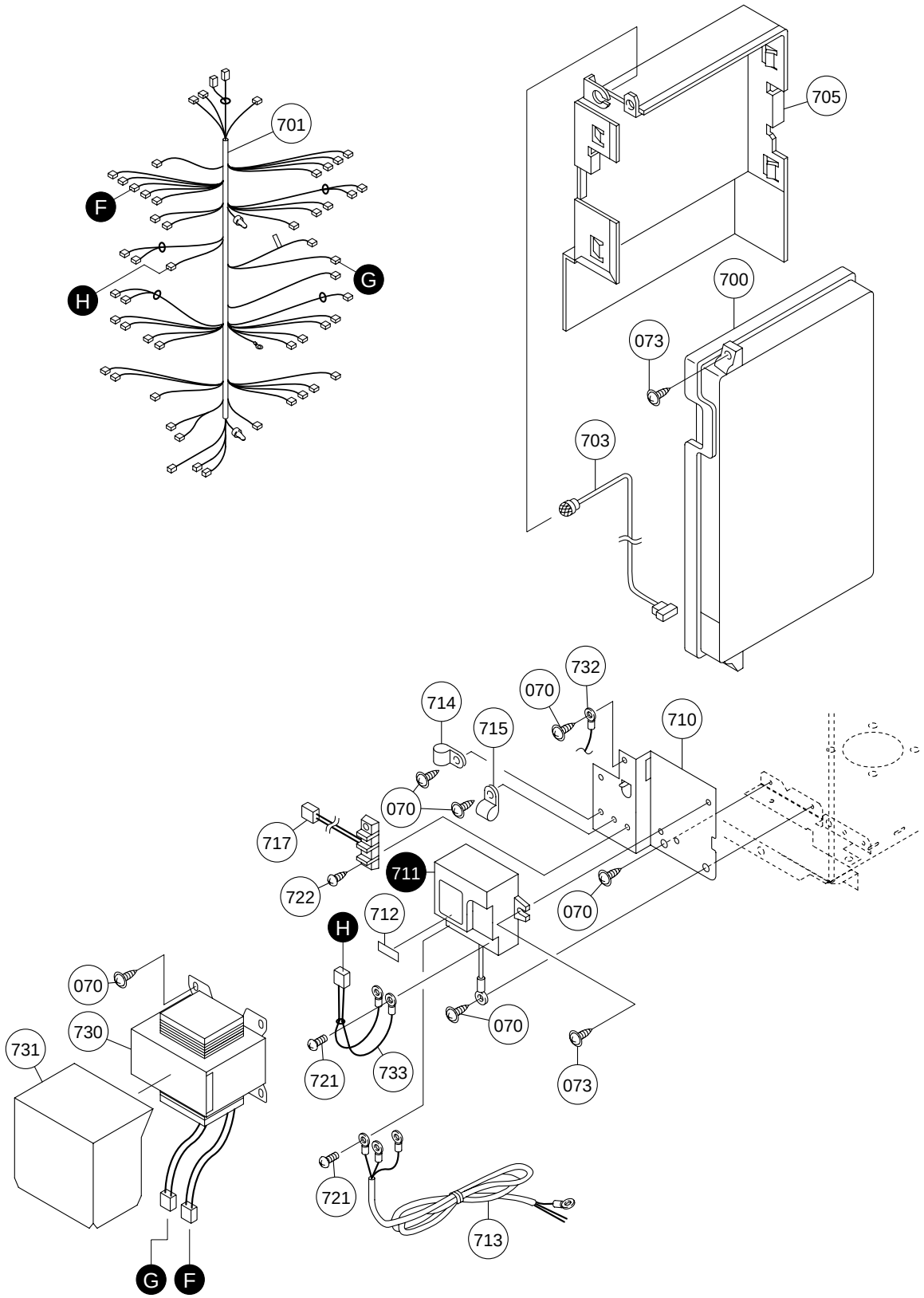
Electronic control unit WH42AD,WH56AD



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Electronic control unit WH42AD,WH56AD

Part Nos.	Part Names	Order Nos.	Q'ty/unit
700	Relay case ELE SET-AS	SHA7826	1
701	Harness AD ELE	ELEJ031	1
703	Lamp cable conduit CRP	CRPJ014	1
705	Relay case cover DEK	DEKA014	1
710	Mounting plate for terminal block DZT	DZTA006	1
711	Current leakage safety device 240 EJS	EJSJ022	1
712	Neutral indication label ELE	ELEK068	1
713	Power supply cord ELE	ELEJ006	1
714	Nylon clamp HP-4N (NK-4N)	7287909	1
715	Nylon clamp HP-6N (NK-6N)	5164702	1
717	Conduit 90-2 CCP	CCPJ028	1
721	Cross recessed bind machine screw M3.5X6	SAC6564	
722	Cross recessed round-head N-tapping screw 4X12	6347801	
730	Transformer EJX	EJXJ021	1
731	Transformer cover EJS	EJSA021	1
732	Connecting cord 1 DEM	DEMJ009	1
733	Conduit R92-250 EJS	EJSJ016	1

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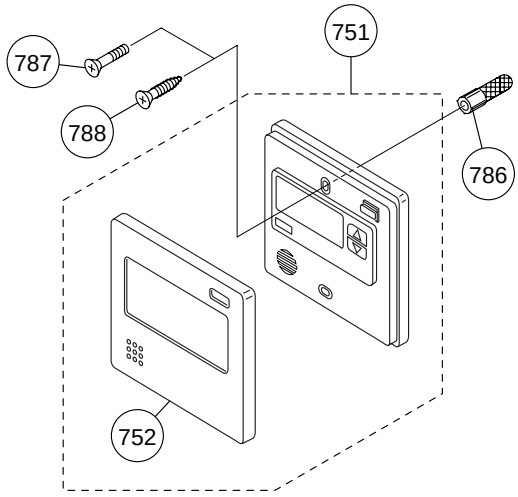
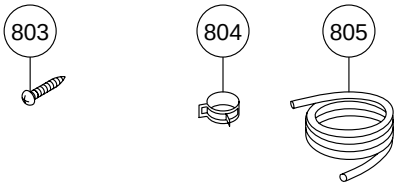
Remote controller and Attached set WH42AD,WH56AD

Remote controller

(RC-7508M)



Attached set



<Special part>

Special part	Special part no.
Owner's Guide	888
installation manual	889

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Remote controller and Attached set WH42AD,WH56AD

Part Nos.	Part Names	Order Nos.	Q'ty/unit
751	RC-7508M Body AD(SE) QPA	QPAJ013	1
752	M Dressed frame body AD(SE) QPA	QPAA013	1
786	Oar plug 6X25	6339000	
787	Cross recessed flat-head screw M4X35	SHB6879	
788	Cross recessed flat-head wood screw (All screw)4.1X20	SHC6365	
800	GQ3211WZFF2AD packing set V	SKA7265	1
803	Cross recessed round-head type 1 tapping screw 5X35	SAC6208	
804	Crescent clamp 18.5	1230701	1
805	Drain hose ID17XT1.5 AHE	AHED061	1
888	Owner's Guide GQ-3211WZ-2AD	SAR8227	1
889	Installation Manual GQ-3211WZ-FF-2AD	SAR8286	1

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Specifications

Specifications

Item		Specification	
Model Name		WH42	LWH42
Type	Installation Air Supply/Exhaust	Internal, Wall Hanging Power Flue	
Ignition		Direct Ignition	
Minimum Pressure for Maximum flow		2.0 bar	
Minimum Flow Rate		3.5 L/min.	
Dimensions		61.5 cm(Height) x 46.4 cm(Width) x 24 cm(Depth)	
Weight		29 kg	
Water Holding Capacity		1.1 Litre	
Connection Sizes	Water Inlet	3/4"	
	Hot Water Outlet	3/4"	
	Gas Inlet	3/4"	
Power Supply	Supply	230V AC (50Hz)	
	Consumption	89W	85W
		Freeze Prevention 115W	
Materials	Casing	Zincified Steel Plate/Polyester Coating	
	Flue Collar	Stainless Steel	
	Heat Exchanger	Copper Sheeting, Copper Tubing	
Safety Devices		Flame Rod, Thermal Fuse, Pressure Relief Valve, Lightning Protection Device (ZNR), Electric Leakage Prevention Device, Overheat Prevention Device, Freezing Prevention Device, Fan Rotation Detector	
Accessories		Remote Controller, Anchoring Screws	

Performance

Item		Maximum Performance	Minimum Performance
Gas Consumption (NET)	I_{2H}	49.0 kW	5.0 kW
	I_{3P}	49.0 kW	5.0 kW
Hot Water Capacity	25°C Rise	24 L/min.	
	58°C Rise	10 L/min.	
Capacity Range		3.5 - 24 L/min.	
Temperature Settings		37 - 48, 50, 55, 60, 65, 70, 75, 80°C	

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- Specifications may be changed without prior notice.
- The capacity may differ slightly, depending on the water pressure, water supply, piping conditions, and water temperature.

Specifications

Item		Specification	
Model Name		WH56	LWH56
Type	Installation Air Supply/Exhaust	Internal, Wall Hanging Power Flue	
Ignition		Direct Ignition	
Minimum Pressure for Maximum flow		2.0 bar	
Minimum Flow Rate		3.5 L/min.	
Dimensions		61.5 cm(Height) x 46.4 cm(Width) x 24 cm(Depth)	
Weight		29 kg	
Water Holding Capacity		1.1 Litre	
Connection Sizes	Water Inlet	3/4"	
	Hot Water Outlet	3/4"	
	Gas Inlet	3/4"	
Power Supply	Supply	230V AC (50Hz)	
	Consumption	120W	112W
		Freeze Prevention 115W	
Materials	Casing	Zincified Steel Plate/Polyester Coating	
	Flue Collar	Stainless Steel	
	Heat Exchanger	Copper Sheeting, Copper Tubing	
Safety Devices		Flame Rod, Thermal Fuse, Pressure Relief Valve, Lightning Protection Device (ZNR), Electric Leakage Prevention Device, Overheat Prevention Device, Freezing Prevention Device, Fan Rotation Detector	
Accessories		Remote Controller, Anchoring Screws	

Performance

Item		Maximum Performance	Minimum Performance
Gas Consumption (NET)	I_{2H}	62.3 kW	5.0 kW
	I_{3P}	62.3 kW	5.0 kW
Hot Water Capacity	25°C Rise	32 L/min.	
	58°C Rise	13 L/min.	
Capacity Range		3.5 - 32 L/min.	
Temperature Settings		37 - 48, 50, 55, 60, 65, 70, 75, 80°C	

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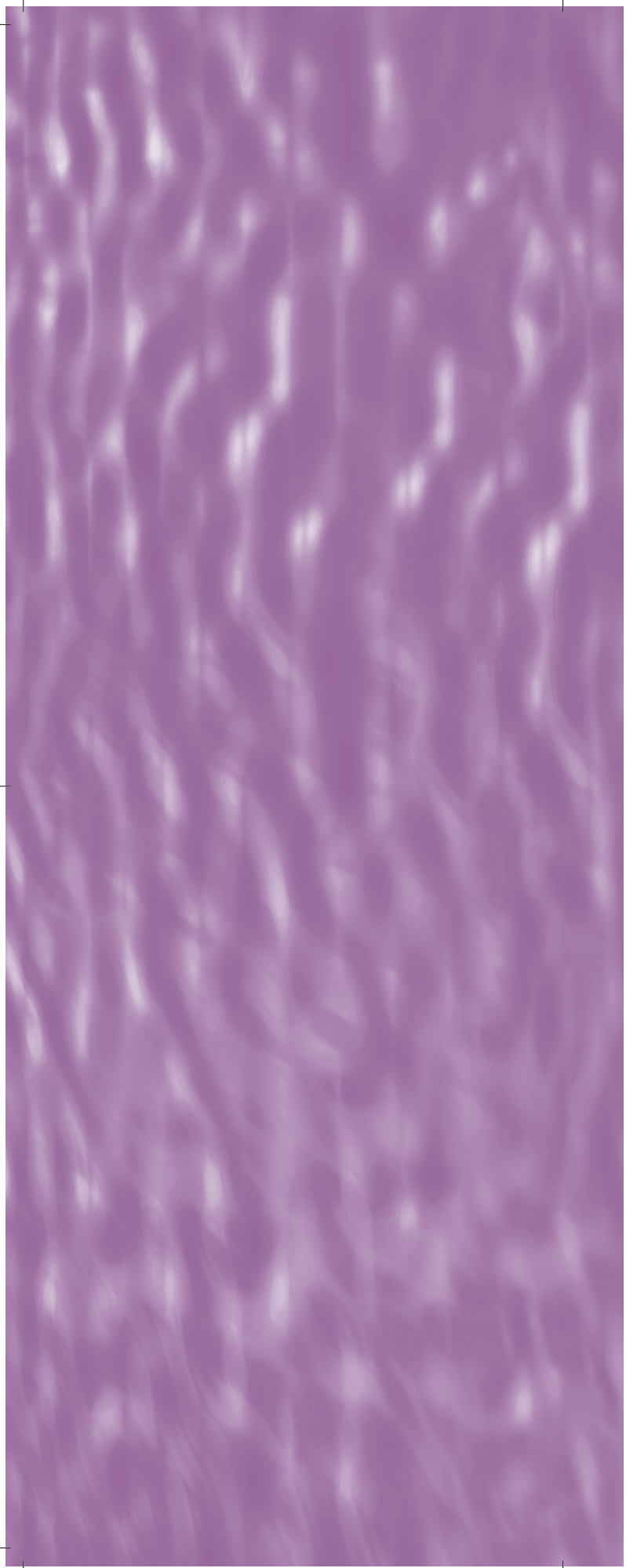

ANDREWS
WATER HEATERS
Andrews Water Heaters
Wednesbury One
Black Country New Road
Wednesbury
West Midlands WS10 7NZ
Tel: +44 (0)121 506 7400
Fax: +44 (0)121 506 7401
Email: andrews@andrews-waterheaters.co.uk
Website: www.andrewswaterheaters.co.uk

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